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A MONTHLY JOURNAL DEVOTED TO THE ELEVATOR AND GRAIN INTERESTS.

PUBLISHED BY
Mitchell Bros. Company,
(INCORPORATED.)

Vol. I.

CHICAGO, ILLINOIS, NOVEMBER 15, 1882.

No. 5.

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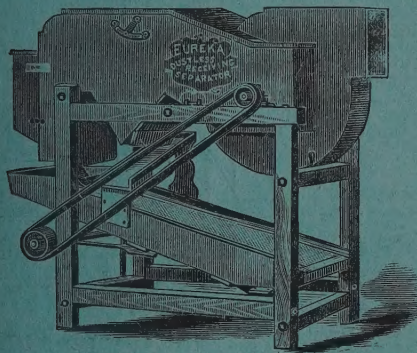
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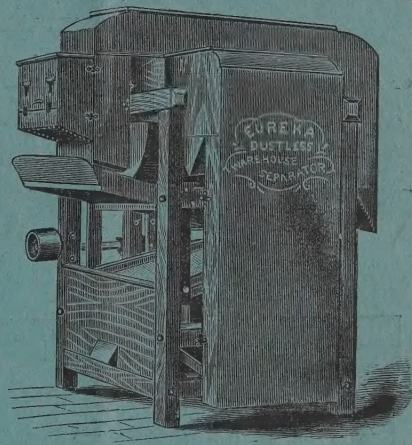
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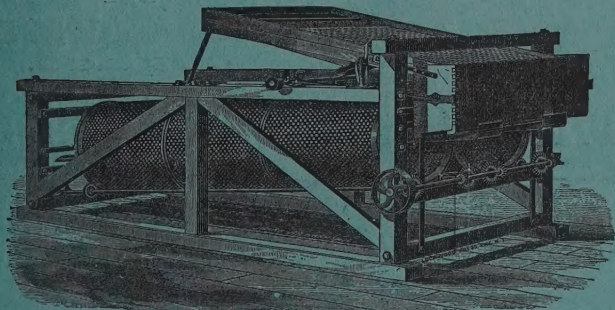


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One granted to Noah Swickard, Oct. 13, 1868, No. 88,005. Re-issued December 20, 1870, No. 4,212, for Improvement in Wagon and Car Unloading Apparatus.

One granted to Samuel C. Kenaga, October 20, 1868, No. 83,288, for Improved Dumping Platform.

One granted to Benjamin Walton, November 23, 1869, No. 97,252, for Improved Dumping Machine, and

One granted Wm. M. Hall, September 6, 1870, No. 107,040, for improvement in Grain Dumps, and that all persons or parties manufacturing or using Grain Dumps which infringe on any of the above described Patents must make settlement for all past infringements, and take license in accordance with the usual terms, if they desire to continue to manufacture or use the same, or legal steps will be taken to enforce said Patents against all infringers.

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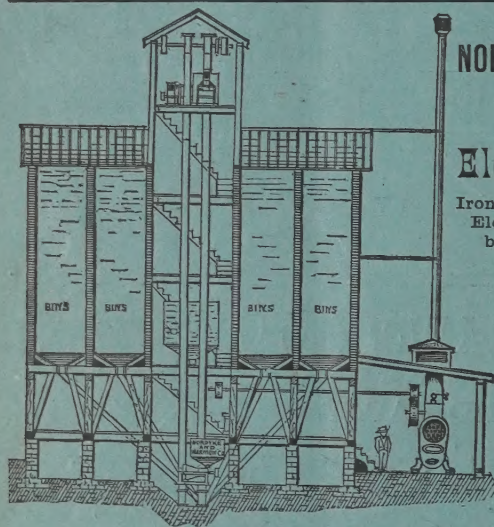
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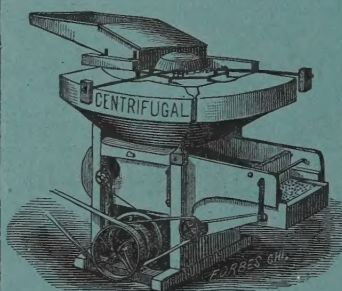
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THE ERIE ELEVATOR AT JERSEY CITY.

In no department of the grain trade is the value of recent improvements in machinery more apparent or more extensively utilized than in the construction of the large elevators at our great commercial centers. The demands of the market are, under the wisest manipulation, extremely unequal and difficult to calculate. At times it may be required to store grain in immense quantities and for a considerable period; again the market demands may be urgent, and require the most expeditious handling of large amounts of grain which no reserve of human energy alone could meet. Aside from this, the interests of dealers and shippers in the sharp contests of competing markets require the utmost care as to cleanliness in handling this grain and in keeping absolutely distinct the different grades, especially those which have the recognition and confidence of prominent and widely separated trade centers at home and abroad. These facts are fully exemplified in the construction and machinery of the elevator we have selected to illustrate in our present issue.

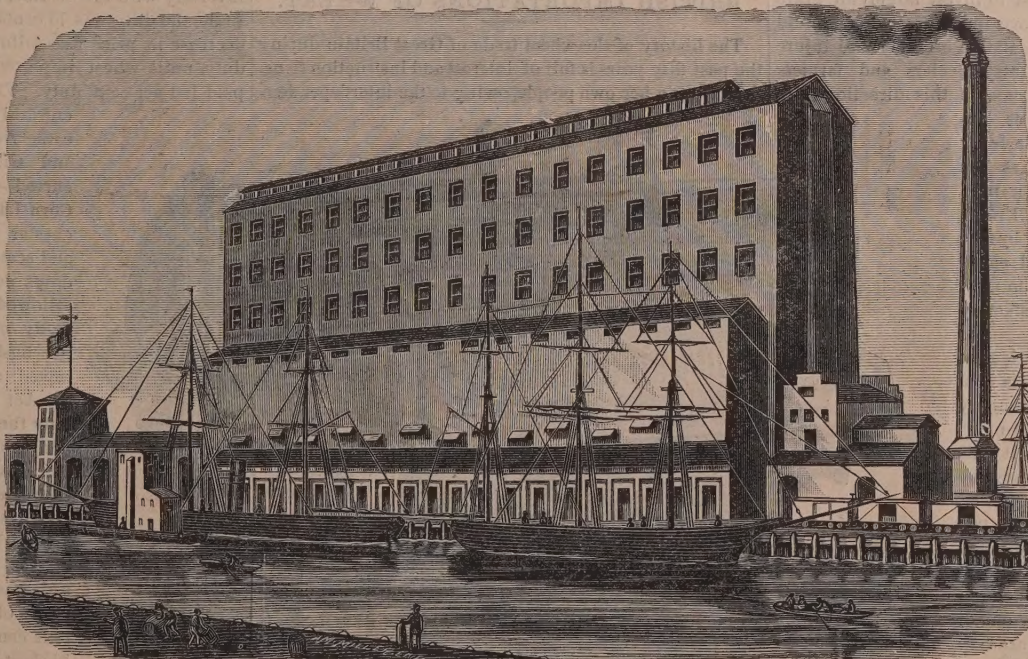
The Erie Elevator is situated in Jersey City at the terminus of the New York, Lake Erie & Western Railroad, on a slip of water connected with the North River, near the Chamber street ferry landing. It was erected in 1879 by the late Jesse Hoyt, under the architectural supervision of S. R. Kirby. The building is 360 feet in length, 90 feet in breadth, with a height of 156 feet, and its possible storage capacity is about 2,000,000 bushels. The foundation consists of 6,000 piles driven ten feet into the ground and cut off two feet below dead water level. The whole is covered with a grillage of Georgia pine lumber laid in three courses two feet thick. This forms a foundation for the piers, which rise from a base of nine feet to a width of three feet at top, upon which are placed the posts that support the bins. There are on the inside of the building 450 storage bins, ranging from

2,000 to 6,000 bushels each capacity, and upon the outside are 60 shipping bins, which can also, if needed, be used for storage.

There are two railway tracks running through the building, between which and at equal distances are ten elevators for receiving grain. Connected with each elevator is a Kirby Steam Shovel—a new invention, consisting of a leg with an endless chain working within, which engages with a shoe that travels up one side of the

water is sufficient to permit the largest vessels of the New York harbor to load alongside the elevator. On top of bins and connected with a cleaner are five short legs extending to the top floor, used for mixing and transferring grain from one end of the elevator to the other.

There are two lines of shafting running the full length of the building for driving elevators, which can be run together or separately. Each elevator is driven independently with a Frisby Friction Clutch, and can be thrown on or off at will of operator without change of speed. Power is supplied by two beam engines built by Christie & De Graff, of Detroit, Mich., of 500-horse power each, with a Bulkly Condenser attached, and so arranged that either engine can do all the work or work separately. Steam is supplied by four 125-horse power Babcock & Wilcox boilers. There are two large fire pumps, one of which is in constant operation, throwing a stream of water through a four-inch copper pipe running the full length of the building, to the top, with a two-inch opening every twelve feet, and hose attached ready for instant use in case of fire. This elevator can receive 400 cars of grain per day, and can ship an equal amount. Hazeltine & Annan are the managers, and H. N. Hopkins superintendent.



THE ERIE ELEVATOR, JERSEY CITY, N. J.

leg and then drops back to the bottom. At one end of the shoe is a counter weight and rope, and at the other is a rope that is attached to the shovel, which is taken into the car and drawn to the door by means of steam power. A car can be unloaded in from five to seven minutes, making five shovelfuls per minute. After being unloaded and conveyed to the top of elevator, the grain is poured into a garner connected with a scale on the floor below. From these hoppers, twenty in number, each of the capacity of a carload, the grain is run into the storage or shipping bins.

On the same line with the receiving elevators are ten shipping elevators for conveying grain from the storage bins to ships and steamers, each one being supplied with garner and scale similar to the receivers. The depth of

The farmers of the old world are to be commiserated upon the situation in which they are placed. Upon them fall the burdens growing out of the standing armies, aggregating five millions of men, and all the accompaniments of vast military camps, to which must be added the enormous expense of supporting a swarming aristocracy and the "pomp and pride and circumstance" of royalty. Here they do not stagger under such onerous burdens, and the wonder is not that they are coming to our shores in such great numbers every month, but that more have not come.

THE RACINE SEPARATOR AND GRADER.

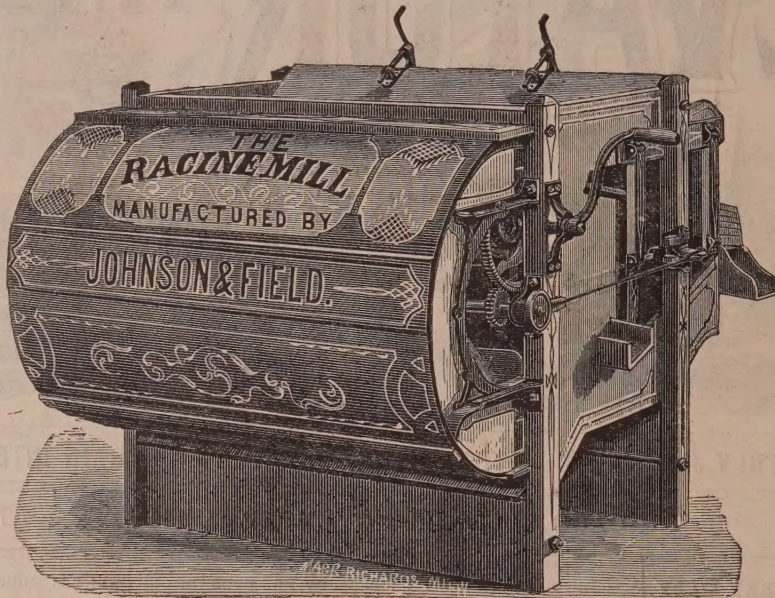
The productive power of our immense tracts of new lands, and the stimulus they give to an inflow of immigration of the bone and sinew of the agricultural classes of Europe; as well as the largeness of our new wheat crop seeking the best foreign markets, makes important every element of the question: How shall we give our product such supreme value as to make it profitable to us in a competition with an overflowing market? Quantity is far from being the main object to be attained; the quality is, as milling experience has shown, far the most important matter, and in the great and rapid improvements in modern milling machinery, not only become much more so, but has discovered elements of worth, in wheat formerly almost discarded and rated low in the markets, which have raised them to the highest position in flour manufacture, and the traffic of the world.

But one of the most important factors in this problem of values is the condition of the grain as to cleanliness, and the most valuable additions to the machinery for handling the grain are the various cleaning apparatuses, not only for the miller's immediate use in grinding, but in preparing the product for market. Shippers know that while plumpness and weight are of the utmost importance, cleanliness, and freedom from impurities, are of equal value in determining higher grades. Nos. 1 and 2 must be clean, or however plump and excellent the sample of wheat inspected, it will be graded No. 3 or "Rejected." Many thousands of bushels of wheat which, with attention to this matter, might have been graded in the higher numbers, have been thus placed in the lower grades, at the loss of tens of thousands of dollars. Such is the statement which comes from the grain centers, and from shippers who have found it to their interest to invest largely in grain cleaning machinery, to remove impurities which would lower the grade, or by fermentation or otherwise injure the grain in transit. Country dealers and farmers might, by judicious investments in this direction raise the grades of their products, increasing the profits of their labor and trade. To such parties the RACINE SEPARATOR AND GRADER, made by Messrs. JOHNSON & FIELD, of Racine, Wis., is offered by the manufacturers with the full confidence that it will be found to meet their wants in the most satisfactory manner.

This machine, two illustrations of which appear on this page, is constructed very strongly of thoroughly seasoned lumber and all the materials are of the best quality. It runs very lightly and can be operated by hand, horse, water or steam power. Each machine is supplied with two eccentrics and rods, one on each side—an arrangement which affords a protection in case of accident, as the machine can be run by one or both eccentrics. The irons are very strong, of superior finish, and are arranged so as to economize the strain and wear upon them. The machines are adapted to the cleaning of wheat, oats, barley, corn, timothy, clover, flax, castor beans, hemp, rice, coffee and all sorts of grass seeds. The No. 2 separator is also arranged for the grading of wheat, being supplied with a grader and side spout. Warehousemen can effect a very great saving by using the separator to clean their screenings, and many who are operating the machine use it for this purpose.

One point of special interest to those who handle flax seed is a new attachment which the manufacturers have arranged for flax cleaning and with which they guarantee perfect work. They also have seed attachments for timothy and clover, in which all the necessary sieves and screens are arranged ready for use, thus saving the operator a great deal of time and experimenting.

The manufacture of the Racine Separator and Grader is a specialty with Messrs. Johnson & Field, and their shops are replete with everything necessary to carry on the business on the large scale which the requirements of their large trade demands. They pride themselves on giving close and prompt attention to the special needs of their customers and are glad to send one of their machines on trial to intending purchasers, thus showing their confidence in its adaptability to the wants of the classes for whom it is specially designed. Parties who



THE RACINE SEPARATOR AND GRADER, FRONT VIEW.

desire to obtain fuller information respecting this machine as well as testimonials and prices, should address Messrs. JOHNSON & FIELD, Racine, Wis., who will be pleased to enter into correspondence with all who need such a device as the one described above.

BRITISH IMPORTATIONS OF WHEAT.

The history of the wheat trade of Great Britain during the past fifty years is full of interest and instruction to us, as well as to her own people, owing to the interdependence

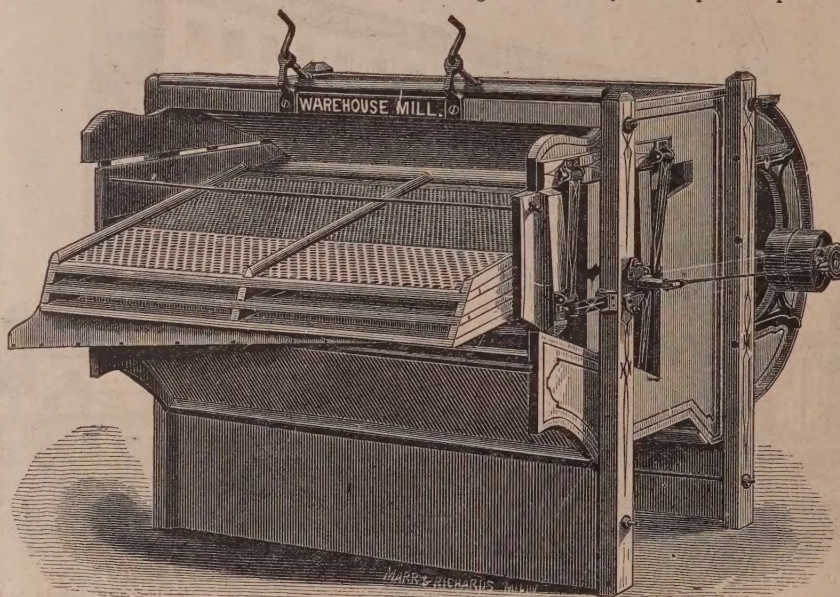
of one year, the excess of importation has been large and increasing. A partial account of the recent increase lies in six successive years of bad crops, that of 1879 not attaining half an average yield. With the exception of 1874, the annual yield of the United Kingdom has been much below the average since 1870.

A remarkable feature in this history is that the prices at which this deficiency is supplied have been steadily decreasing, and the rates are now cheap. Not many years ago, the deficiencies of the European crops three years since would have produced famine prices. This occurred in 1847, when the price of wheat in England reached \$3.10 per bushel, an advance of 127 per cent., causing great distress. The average price of wheat then in 1861 was \$1.66 per bushel, as compared with \$1.40 in 1870, and \$1.33 in 1880; that is, there has been a decline of one-fifth in the price of breadstuffs in Great Britain, after one of the worst of harvests, during the past twenty years. This is mainly due to the prolific harvests of America, with the immense increase in the facilities for interstate and international commerce, until the vast distances between the producer and his market are nearly annihilated, and the farmer and consumer almost clasp hands as neighbors. We may appropriately add, what seems almost paradoxical, the American farmer is at the same time receiving a better price for his products; and, which to him is of amore importance, not "in trade," credit, "wild cat" or "red dog," but in money whose value is recognized in all the world's centers of trade.

The relation of the English Corn Laws and their repeal, to prices, is of large import in this fifty years' history. The tariff on wheat importation previous to April, 1842, was on a sliding scale. When the price reached in 150 market towns \$2.20 per bushel, the duty was put at its minimum, three cents per bushel, rising inversely with the decline, so that when it was quoted at \$1.90, the duty was 75 cents per bushel. After this each decrease in price was followed by an equal increase of duty, until wheat imported at about \$1.30 per bushel paid 100 per cent. duty. This was Great Britain's agricultural protection! Bitter complaints came from the masses of consumers, and sliding-scale modifications occurred—mere placebos. The Anti Corn Law League, organized at Manchester in 1838, sent out its lecturers and scattered its pamphlets; deficient crops and potato famines in Ireland, followed by the enormous price already mentioned, in 1847 of \$3.10 per bushel, accomplished the work of repeal, and from Feb. 1, 1849 when the Act of 1846 went into operation, only the nominal duty of three cents per bushel was retained. Increase of importations, varying with the character of the home crops, and added to, perhaps, by the increased use of better bread by the laboring classes, has gone on, accompanied by a decrease of price, which at the close of 1851 was the lowest of the half century, \$1.06 per bushel. The highest prices reached since then were \$2.50 per bushel in the years of 1854-5, and in 1868 and 1877 respectively, \$2.13 and \$2.05 per bushel.

Since the latter year, with crop failures at home and abroad, vast importations, foreign wars and the Irish question, except momentarily in a speculative crisis, the price of wheat in Great Britain has not exceeded about \$1.50 per bushel. The prices given are approximations in the relative value of the gold of the two countries, without exchange.

The sources from which these imports have been obtained, present a large field of inquiry. Russia has long been one of the principal sources of supply, but her relative importance has declined. In 1867 she sent to the United Kingdom 14,025,000 hundred weight of wheat, in 1872 the amount was 17,855, while the average of 1880-81 was only about 3,500,000 hundred weight of



THE RACINE SEPARATOR AND GRADER, REAR VIEW.

of the commerce of the two nations, and its rapidly increasing importance. Half a century ago Great Britain's home growth of wheat was inadequate to her wants, and required an annual importation of about 7,500,000 bu., or 19.2 pounds per capita; her population then numbering 24,500,000. With a population of 34,000,000, her average annual imports for the years 1877-81 were about 125,000,000, or 220.6 pounds per capita, "A dangerous dependence," as her journalists assert, on the other wheat producing countries for her food supply. During the eighteenth century, up to 1792, her exports of grain exceeded her imports, in the middle of the century being about 8,000,000 bushels per annum, which was seldom exceeded. But from this time on, with the ex-

wheat, in 1872 the amount was 17,855,000, while the average of 1880-81 was only about 3,500,000 hundred weight. The North American Colonies have for many years furnished large but variable supplies. In 1867 from this source 683,000 hundredweight was received. The maximum of the period of our study was 4,781,000 hundredweight in 1879; while the average of the years 1880-1 was about 3,300,000 hundredweight of wheat. It is only since the opening of the Suez Canal that the wheat imports from India and Australia have been of any importance, but they are now entering as factors of increasing value in the British grain trade, and India last year more than doubled her shipments of wheat of the previous year. But the highest position by far in the supply of wheat to Great Britain is that of our own country. Thirty years ago the whole amount of wheat exported from the United States was only about 800,000,000 bushels; in 1880 it had reached the amount of 152,800,000 bushels, or 190 times the total quantity supplied to its customers in 1850. While this period includes our great civil war and all its destructive ravages, it was also the period of development of our vast railroad systems, and improved facilities for ocean transportation, and in which villages like Chicago, then almost unknown, have become grand commercial centers, ranking with the great cities of the Old world in their traffic and industrial enterprise. In the above statement flour has been included, allowing the English estimate of the rates of one and one-fourth in grain for each unit of flour. On this basis, the amount of flour imported by Great Britain in 1867, was about 1,900,000 barrels, which had increased in 1880 to about 5,570,000 barrels.

THE ERIE CANAL.

When De Witt Clinton saw the completion of the Erie Canal he undoubtedly believed that the State of New York was provided with transportation facilities for all time. There was the West undeveloped but rich in promise, prepared to send her produce over the great lakes and land it upon the borders of the Empire State. The broad Hudson, navigable for over 150 miles, and emptying its waters into the ocean, afforded it a partial means of connection, but there was a "missing link," and this was supplied by the construction of the Erie Canal, 350 miles in length, and forming with the Hudson a continuous line of water ways from the lakes to the Atlantic.

The demonstration which signalized the opening of the canal was arranged on a scale of magnificence not equaled at the inauguration of the various projects, which soon followed. In fact, the construction of this work at that day was no easy task, and its completion might well be regarded as a triumph of engineering skill. As early as 1800, the idea of conveying the waters of Lake Erie to the Hudson by means of a canal was conceived. It was eight years later, however, before the survey of the proposed route was made. The radical character of the enterprise, the amount of money involved, and the advent of the war in 1811, were obstacles in the path of progress in this direction which delayed the actual work until 1817, and it was not until 1825 that the canal was finished. Its influence on the commerce of New York State and city was immediate and pronounced. Much traffic, which would otherwise have sought a seaboard outlet by some more northern or southern route, was diverted across the Empire State, and helped to swell the growing imports of Gotham. Canals were in favor; and when the plan of building a railroad from Albany to Boston was first mooted, many believed that it would be wiser to connect these two points by a canal.

An average crop does not suffice for the wants of Germany, and the actual crop is slightly below the average. Prussia, for instance, has produced 1,326,000 tons of wheat (a ton equal 1,000 kilogrammes). The consumption of Germany is above 2,414,398 tons. Prussia has produced 5,012,800 tons of rye; the consumption of Germany is above 6,078,246 tons. Prussia has harvested 993,400 tons of barley; Germany consumes above 2,252,082 tons, which was used up during the year ending June 30, 1882. The supply of wheat and rye in Prussia is 7.25 bushels per head. The deficiency will be covered by imports.

THE HARRISON GRAIN CONVEYOR.

Since the introduction of machinery to take the place of hard labor in handling grain, the chief effort of transportation companies, elevator and mill men has been to secure some apparatus that could be profitably used in loading, unloading and conveying grain in and out of warehouses, vessels and cars rapidly and without mixing. To supply this want inventors have expended a vast amount of study and experiment, with varying suc-

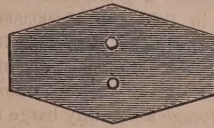


FIG. 1. DIAMOND SHAPE PUSH PLATE.



FIG. 2. PATENT LINK FOR HOLDING PUSH PLATES AND CONNECTING CHAIN.

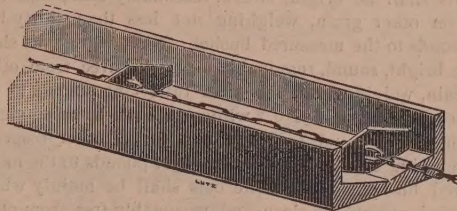


FIG. 3. SECTION OF TROUGH WITH CHAIN AND PUSH PLATES IN POSITION.

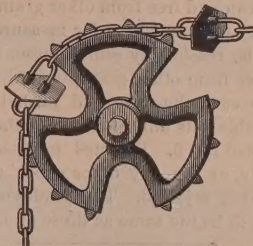


FIG. 4. SPROCKET WHEEL AND CHAIN.

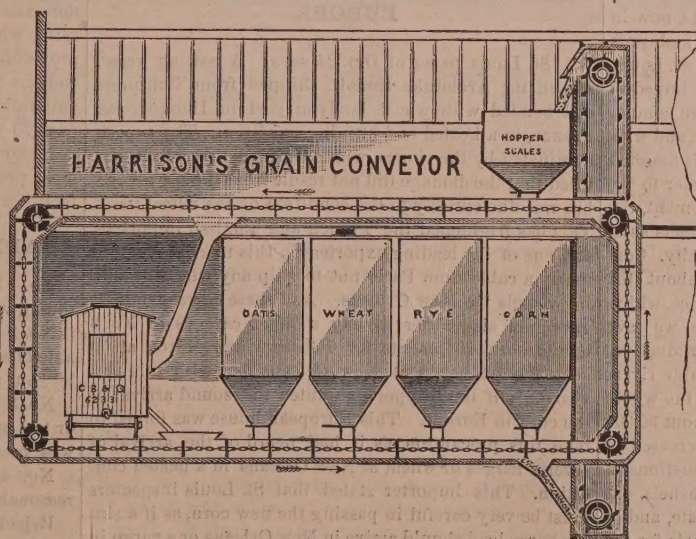


FIG. 5. SHOWING ARRANGEMENT OF CONVEYOR.

cess. The Harrison Conveyor Co. of 16 West Lake street, Chicago, have lately put upon the market a combination of patented devices which are claimed to fill all the requirements of the case.

The inventors are practical mill and grain men, who, in the course of a long experience, have tried all sorts of conveyors, and who finally, to meet an exigency, conceived the idea of the metallic diamond-shape push plate shown in *Fig. 1*, which, by their ingenious device of a patent link coupling, shown in *Fig. 2*, is firmly attached to an endless wrought chain and operated through a wooden or composite trough conforming in shape to the push plates as shown in *Fig. 3*, and running at each angle over a sprocket wheel as shown in *Fig. 4*. One method of application is shown in *Fig. 5*. These push plates are detachable, being easily adjusted without the aid of skilled workmen, and the construction of the chain, push plate and links is such that it is impossible for any grains to lodge on either, and consequently every

article is dropped, the patentees assure us, while passing over valves or openings for discharge, thus of necessity doing absolutely clean work, neither permitting any mixing nor carrying grain past the point of delivery—an objection which has been urged against some other conveyors.

The leading feature of this conveyor, which is covered by patent, is that the trough through which the grain passes has its lowest point in the center of the cross-section, and the grain, which by its gravity naturally falls to the lowest point or center of bottom of the trough, is swept out by the push plates. The natural drift of the moving grain being towards the center or lowest point of the trough, with the chain raised above and clear of contact with the bottom, allows the trough to be worn perfectly smooth by the push plates, and there is no formation of ruts and grooves for the lodgment of grain, as in the case of flat bottom conveyors. Thus, with troughs at all times clean, the patentees claim that actual practice demonstrates that one kind of grain can follow another in rapid succession in their conveyor without loss of time in stopping machinery to clean out the troughs to avoid mixing grades or varieties of grain.

The conveyor being made of wrought metal possesses the strength necessary to adapt it to use in conveying long distances, or in moving mineral or any heavy substances, and allowing such obstacles as bolts, nuts and stones, so often found in loads of grain, to pass through without any injurious defects. Besides, it is not injured by exposure to the weather, and may be worked out of doors, requiring no boxing for transportation and not liable to be damaged. Being operated throughout its length simultaneously, it will both transfer to and from a warehouse, cars or vessels, different kinds of grain at the same time.

The Harrison Conveyor Co. did not put this conveyor on the market until it had received the commendation of expert engineers and millwrights, and had been subjected to a severe and practical test of over a year's use in the Transfer Elevator of the B. & N. W. R. R. Co., at Burlington, Iowa. We have been shown a letter from John T. Gerry, superintendent of that road, speaking in the very highest terms of the work of the Harrison Conveyor, as well as letters from other users, including one of the largest malting firms in the country, Messrs. Chas. S. Epps & Co., of Chicago. It has also recently been put into several Western elevators, by C. A. Bamber, mill architect, and we are told that in all cases it has given entire satisfaction from its clean work and the little power required to run it. The company are sparing no expense in having their conveyor built in the most substantial manner and are placing them before the public through some of our leading mill furnishers, among whom we may name Messrs. Chas. Kaestner & Co., of Chicago, Kerfoot Bros., Des Moines, Iowa, B. F. Gump, Chicago, Murray Iron Works, Burlington, Iowa, and C. A. Bamber, Iowa Falls, Iowa. The favor with which the Harrison Conveyor has already been received by our grain handlers generally, is very flattering to its intrinsic merits, and justifies the prediction of a prosperous career for the company.

By taking advantage of the short crops of 1881, a class of speculators here bought and controlled our surplus, and put up prices so high that English dealers could not take our wheat. They therefore began canvassing every other available source. The high rates enabled foreign dealers to gather many million bushels in India, and to not only glean large quantities from localities hitherto considered inaccessible, but also to make drafts upon the "reserves" usually stored there against temporary drouths, or occasionally short crops from other causes. These supplies were brought from remote points, not only in India, but in Australia, and elsewhere, and laid down in Great Britain at lower rates than they could be taken from the grasp of these speculators who held our American exportable stocks, even when ocean freights amounted to only a very few cents per bushel. The result is, that all these foreign lands have been stimulated to very greatly enlarge their wheat production, and with cheaper labor to offset the longer carriage, they will hereafter supply a very large percentage of the breadstuffs which would otherwise be taken from this country.

MAKING A GRAIN MARKET.

Free traders insist that "the price of our agricultural products is fixed abroad." Sometimes this is true and sometimes not. When foreign nations raise all the grain crop they need for their own wants, the price of American grain is fixed by our own supply and demand. When foreign nations have very large food wants which they cannot supply and our own crop is short, the grain price is fixed in this country, and not by foreigners. When the foreign demand is less than the surplus of the world, and our surplus is large, then foreigners regulate the price.

Clearly it is to the interest of American farmers that grain prices shall be fixed here rather than in Europe. The countries in Europe which most frequently fall short of grain have many markets to draw from. In many of these markets the price of labor is not one-quarter of the price in this country. Hence their grains cost producers less and can be sold less. So far we have been able to compete with these cheap grain producers by reason of our superior advantages in carrying freight across the ocean. But as Russian, Roumania and all the grain belt of eastern Europe becomes cobwebbed with railroads and is brought into closer connection with the west, these advantages are disappearing.

Wheat at Odessa has been sold for 48 to 54 cents per bushel when it brought 90 to 94 cents at New York. And the time is rapidly approaching when the American farmer will be unable to sell a bushel of wheat in England unless he can deliver it there at 85 to 90 cents a bushel. Grain competition from the cheap labor of Egypt and eastern Europe will fix these prices. With grain at 80 or 90 cents in England, the Michigan farmer who depends on that market can not receive a greater price than 60 or 70 cents for his wheat, and a farmer in Iowa about 40 or 50 cents. To this condition our farmers must be brought by dependence on a foreign market. This can only be avoided by creating a home market, which will fix grain prices here instead of allowing them to be fixed by cheap labor in Europe. And this home market can only be created by multiplying factories and home consumers.

ST. LOUIS AS A GRAIN MARKET.

The annual report of the Bureau of Statistics, now in course of publication, reviews the condition and prospects of the grain trade from the standpoint of St. Louis. The influence of the Mississippi River and its improvement is specially noted as stimulating an active competition with Chicago for the Northwestern traffic, and with New Orleans for that of the Southwest; and it is asserted that she can successfully compete with the former to the extent of her capital. Referring to this statement, the *St. Louis Grain Review* presents an array of facts as to the area covered by the trade influence of that city. Considering one-half the distance to Chicago, about 132 miles, as the radius of the circle of this influence, which is divided by the Mississippi into two portions, we have a section of immense value in agricultural productivity, and commercial facilities both by navigable rivers and railroads. The Illinois portion contains the whole or parts of 61 counties covering an area of about 30,000 square miles, with a population which has increased 14 per cent. in the last ten years. The cereal productions in this region in 1880 were of corn 141,476,718 bushels, out of about 326,000,000 bushels for the whole State, and of wheat about 43,000,000, out of 51,000,000 bushels for the State, while of oats and rye the production of this section was over 19,000,000 bushels.

The Missouri section contains 45 counties with about 26,000 square miles, and a population of nearly 1,000,000, an increase of 16 per cent. in ten years. The cereal productions of this section were about 11,000,000 bushels of wheat, 49,500,000 bushels of corn, and about 6,000,000 bushels of oats and rye. The whole circle, with an area about one-half of Great Britain and Ireland and a population of 2,285,000, has an annual production of over 270,000,000 bushels of grain, of which more than 53,000,000 are wheat and 191,000,000 bushels corn.

The aggregate warehouse and elevator capacity of St. Louis is nearly 11,000,000 bushels. The total receipts of all grains during 1881 were 51,784,403 bushels, of which about 6,000,000 were by river (all directions) and 3,000,000 by wagon. The total shipments of grain were about 20,000,000 bushels by rail and 19,000,000 by river, of which about 11,000,000 were shipped to the East, about 28,000,000 South and Southeast, and the remainder

North, West and Southwest. The amounts received and shipped by some of the more important railroads are stated as follows: Chicago & Alton, about 6,400,000 bushels received and 2,500,000 shipped; Missouri Pacific, some 8,000,000 bushels received and 370,000 shipped; St. Louis & San Francisco, about 3,000,000 received; St. Louis, Wabash & Pacific received about 11,400,000 bushels, and about 1,700,000 shipped; Chicago, Burlington & Quincy received about 7,000,000 bushels. The river movement of grain had advanced from 14,600,000 bushels in 1870-1 to 25,500,000 in 1880-1. St. Louis is credited with 313 vessels, with an aggregate representing over 180,000 tons. This includes the tow-boats and barges of the various transportation companies, which average a monthly barge transportation of 4,000,000 bushels of grain. These lines have stationery and floating elevators at Cairo, Belmont and New Orleans.

GRADES OF OATS IN NEW YORK.

The New York Produce Exchange has recently issued the following schedule of grades in oats: Extra white oats shall be bright, sound, reasonably clean and free from other grain, weighing not less than thirty-two pounds to the measured bushel. No. 1 white oats shall be bright, sound, reasonably clean and free from other grain, weighing not less than thirty-one pounds to the measured bushel. No. 2 white oats shall be seven-eighths white and equal to No. 2 oats in all other respects, weighing not less than twenty-eight pounds to the measured bushel. No. 3 white oats shall be mainly white, sound, reasonably clean and reasonably free from other grain, weighing not less than twenty-five pounds to the measured bushel. No. 1 oats shall be bright, sound, reasonably clean and free from other grain, weighing not less than thirty-one pounds to the measured bushel. No. 2 oats shall be reasonably sound, reasonably clean and reasonably free from other grain, weighing twenty-eight pounds and over to the measured bushel. No. 3 oats—all merchantable oats unfit for any of the above grades shall be graded No. 3. Rejected oats—all oats damp, unsound, dirty, or for any other cause unfit for No. 3, shall be graded rejected. The grades of winter wheat were ordered to be the same as those of last year.

HEATED GRAIN IN NEW ORLEANS AND EUROPE.

A St. Louis paper of Oct. 24 says: A sailing vessel named the Archduke Rudolf, shipped from Baltimore and bonded with wheat, lately arrived in Dunquerque, France, in a heated and burning condition. The experts nominated by the courts, who examined this wheat, testified that the damage did not result from the sea voyage, but was due entirely to the condition of the wheat itself. This has frightened the French and English importers, and one of the leading exporters in this market received to-day a cable from Paris not to ship any wheat by sailing vessels via New Orleans. And these correspondents gave him also order to buy steamer cargoes of No. 2 mixed corn, shipments for February and March at 50 cents free on board at New Orleans, but with this proviso, only if the shipper guarantee the sound arrival of the corn in Europe. This European house was forced to take this precaution, as it had heard of the arrival of several barges of wheat at New Orleans in a heated condition. This importer stated that St. Louis inspectors must be very careful in passing the new corn, as if a single barge-load should arrive in New Orleans or a cargo in Europe that was out of condition, undoubtedly it would have a most injurious, even if not ruinous, effect upon our export trade.

POSSIBLE INCREASE OF A GRAIN OF WHEAT.

If says a German writer, we reckon that a single grain of wheat produces 50 grains, and that these fifty will each produce 50 grains more, and so on, we find—

In the second year.....	2,500
In the third year.....	125,000
In the sixth year.....	15,625,000,000
In the twelfth year.....	244,140,625,000,000

The third year's crop would give 300 men one meal, leaving enough bran to feed eight pigs for one day. The produce of a single grain in the twelfth year would suffice to supply all the inhabitants of the earth with food during their lifetime.

NATIONAL HARVEST REPORT.

The Department of Agriculture at Washington reports that the average yield of oats will be somewhat higher than that of last year or in 1879, and the product will be nearly as large as that of wheat, probably about 418,000,000 bushels. The average yield of rye is 14 7-10 bushels, making a crop of 20,000,000 bushels. The indicated average yield of barley is 23 bushels per acre, aggregating 45,000,000 bushels. California, New York and Wisconsin, together produce more than half, or 27,000,000 bushels. The product in 1879 was 44,000,000. The prospect for buckwheat is good for a nearly average product, 11,000,000 to 12,000,000 bushels. The general average of the condition of potatoes is 81. The returns indicate a probable yield of 80 bushels per acre on an area of nearly 2,000,000 acres.

The yield per acre of corn will be reported in November. The condition averages 81, being very high in the South and comparatively low in the States of the largest production. In Illinois (with 8 per cent. decrease of area) the condition is only 72, in Iowa 70 and in Ohio 87. These three States produced 40 per cent. of the crop of 1879. A careful comparison of changes in area and condition indicates an average yield of 25 bushels per acre against 28 in 1879 and 18 last year. The average of a series of years is between 26 and 27 bushels. New England will produce, according to the October returns, 7,000,000 to 8,000,000; the Middle States, 82,000,000; the Southern States, 340,000,000; those north of Tennessee and west of Pennsylvania, 1,250,000,000, an aggregate of 1,680,000,000. Later returns may slightly reduce but cannot materially increase this estimate.

THE FUTURE CORN DISTRICT IN THE SOUTH.

At this time, when the size and value of our grain crop is being so fully appreciated, and the future promises carefully studied, a new interest is attached to the capabilities of the South. A writer in the *Petersburg Index-Appeal* states that there are twenty counties, mainly in the eastern part of North Carolina, with some of the adjoining portion of Virginia, drained by innumerable streams with swamps and lakelets into the Albemarle and Pamlico Sounds. These waters stretch along the coast in length together some 160 miles, and of varying width. The richness of the soil of those lands is proverbial from the earliest settlements in 1660. The Indians living there had abundance, under the rudest cultivation. Some of this land has been known to yield from 35 to 50 bushels per acre. All that is required is drainage and proper cultivation to make them among the most productive cornlands of the country. The natural facilities for transportation are, of course, abundant.

GRADES OF BARLEY AT LAKE PORTS.

No. 1 Barley shall be of a bright, natural color, plump, sound, well cleaned, and free from other grain.

No. 2 shall be sound and reasonable plump, reasonably clean and free from other grain, good malting barley, but may be slightly stained.

No. 3 shall comprise barley that is slightly unsound or too much stained or shrunken for No. 2, but otherwise meet the requirements of that grade.

No. 4 shall include shrunken and discolored, but reasonably sound barley, and fit for malting purposes.

Rejected includes all barley unsound, unfit for No. 3 but fit for the warehouse.

RATES OF ELEVATING AND STORAGE AT DULUTH.

On all grain received the charge for elevating and storage will be as follows until further notice:

Elevating (including 30 days' storage) per bushel..... 1 1/4 cts.
Storage for each succeeding 10 days or part thereof, per bu..... 1/4 ct.
Cleaning and blowing, per bushel..... 1/4 ct.

On all grain received on and after November 1st, 1882, the foregoing rates will be charged until four cents per bushel has accrued, after which no additional storage shall be charged until after June 1st, 1883.

The above rates of elevating and storage have been agreed upon by the Union Improvement & Elevator Co. and the Lake Superior Elevator Co.

The most northern place in the world where rye and oats mature is found in the Swedish province of Norrbotten, at Kengis, 49 miles north of the Arctic Circle, while the northernmost limit of corn cultivation is at Muoniovara, 97 miles north of the Arctic Circle.

HISTORY OF THE CONVEYOR.

The principle upon which the conveyor works was known when the "Archimedian screw" was devised, if not before; but how early this principle was applied in practical mechanics we would hardly venture to say. Nearly a hundred years ago Oliver Evans applied the conveyor to the work of flour mills, principally to moving flour and bran; and his "model mill," shows a conveyor carrying wheat which has been unloaded from a piratical-looking ship lying alongside the mill. Old Oliver's conveyor consisted of an eight-sided wooden shaft set round on each side with small inclined boards or flights, operating more like a number of little plows than like the modern screw. The conveyor approached the screw form as soon as the idea was conceived of making the flights of iron. The structure was small and slight but sufficiently strong for the purpose required, as the shaft was used for light work, such as conveying bran and flour.

Only within the last twelve years has the conveyor been used for running grain in quantities. In 1873 was invented the plan of grain elevator, which necessitates moving grain horizontally. A conveyor was made for use in these elevators which was a modification and improvement of the old-fashioned flour mill conveyor. The size of the wooden center was increased, and the flights made of wrought iron bent to a spiral so as to form a continuous flight. But the greatest innovation was in the way of supporting the conveyor, instead of being held by supports in the bottom of the box or trough, the shaft was hung from above by adjustable brace rods so that the bottom of the trough was a smooth unobstructed surface. The introduction of the hanger marked a new era in the use of the conveyor. The manufacturing of the grain conveyor was commenced in 1873 and several thousand feet were made in the two years following, all used in grain elevators. The plan of elevator requiring conveyor depends largely for its perfection upon the true working of the conveyor. The first grain conveyor made was rather crude. The greatest objection was found in the wooden shaft which would spring with use, and warp as it seasoned, so that the shaft would get out of line. Even hardwood centers were found liable to become untrue. Hollow iron shafts were next tried which served admirably for light work, but against which the objection was raised, when applied to heavy work, that the shaft did not afford any stay for the screws or nails which fastened the flights.

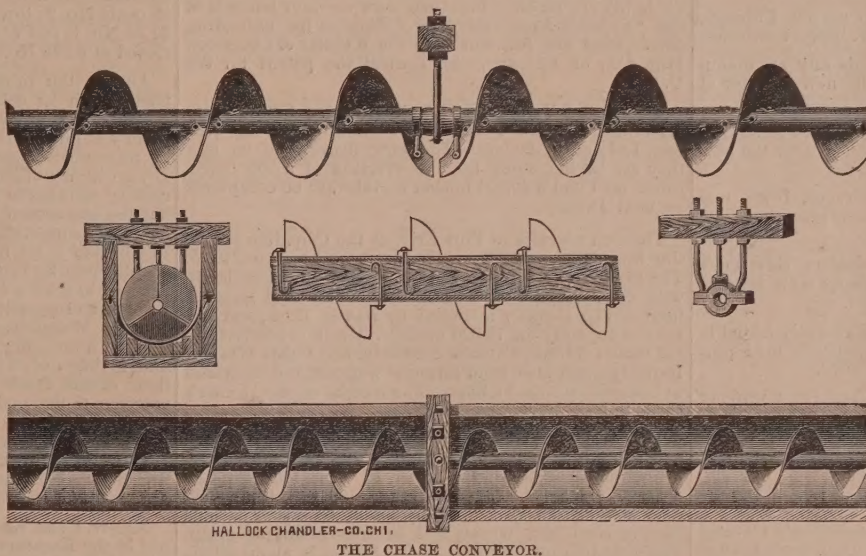
In 1875 the inventors of the Chase Plan of Elevator tried filling the hollow shaft with wood, to stiffen it and form a purchase for the nails or screws. In the same year they patented the conveyor, now known as the "Chase Conveyor," and extensively used for carrying grain, rough rice, seeds and all other substances handled by belt and buckets. This conveyor is made on the wood filled shaft and is claimed to be unexcelled for strength or durability. Four sizes are made for carrying grain. The smallest on the two-inch center will carry, we are told, at the rate of 1,000 bushels per hour, while the largest on the three and one-half inch center will carry at the rate of 9,000 bushels per hour. The longest one in use is 350 feet long. The iron center is gas pipe, cut in lengths of 16 feet and each length is filled solid with a wooden core or filling. The filling stiffens the shaft and forms a brace to hold the nails which secure the flights. The flights are of iron plate, cut one-third of a circle, the grain of the iron running crosswise, not lengthwise of the flights. The flights are heated in a furnace and pressed to a spiral shape while hot, and the ears or lugs turned up on the inner edge to fit the shaft. Holes are drilled through the lugs and through the pipe, and the flights are attached to the shaft by 20-penny clinch nails, which clinch firmly into the wood which forms the core of the gaspipe. The manufacturers of the Chase Conveyor claim that this is the only method of fastening flights to a shaft so that they will not strip off when any hard substance gets into the conveyor box. A flight securely fastened to the gaspipe center cannot

strip off, if any hard substance gets into the trough the flight will bend before it will become detached from the pipe.

In the early days of using conveyors in grain elevators, some difficulty was experienced by grain remaining in the bottom of the trough and so mixing kinds of grain. Various devices were tried for cleaning the trough, the only successful way is to adjust the shaft properly in the trough, raising and lowering it by means of nuts and brace rods, when so adjusted it will clean to a single grain.

The wood-filled conveyor when done, is put into a lathe and the edge of the flight is ground off by an emery wheel until the edge of the spiral is perfectly true. The lengths of conveyor are coupled together by a loose gudgeon made of chilled iron. The conveyor is made either right hand or left hand, and by reversing the motion one line may be made to carry in either direction. The lengths are so coupled together that one may be taken out and replaced when desired. Repairs are very light as new flights can be put on without re-boring the pipe.

The Chase Conveyor is manufactured in Chicago,



HALLOCK CHANDLER & CO. CHICAGO.

THE CHASE CONVEYOR.

where the patentee can personally inspect every length which goes out. Many thousand feet are manufactured annually. For full information and prices address The Chase Elevator Co., 99-101 Washington St., Chicago.

TRANSPORTATION OF GRAIN.

In reference to the relative power of capital and of the economies of transportation upon prices and upon the course of trade, we find it stated in Mr. Nimmo's recent report on the internal commerce of the United States, that according to the report of an expert, capital controls trade at certain centres and upon certain lines by "capitalizing commodities in movement." For instance, if there be not sufficient capital to move the commodities produced, they naturally decline in value; or, in other words, more would have to be given for a dollar, than if the supply of capital was in larger proportion to the supply of commodities to be moved. Modern commerce cannot be carried on without banking facilities; they are a part of the modern system. The economy is obvious and enormous, banking capital making commerce move many times more rapidly than it could without banks. For instance, during the past five months the clearings of the Boston banks aggregated hundreds of millions of dollars, nearly all of which was in the form of checks and drafts. The clearings of the New York banks in a single year, amounted to \$25,000,000,000 in round numbers. All the currency of the United States could not have effected these Exchanges, which are so quietly and easily done by these bits of paper.

The laws of trade respecting production and transportation is given in the following practical demonstration: "Two hundred thousand bushels of corn in Chicago were seeking a market at the seaboard. The question controlling its destination was not the financial strength of the city to be selected, but which market on the Atlantic coast would yield the largest return to the shipper. An application came to a firm in

New York in these words: 'Will you advance on 200,000 bushels of corn to be shipped to Baltimore?' They answered, 'Yes; but why to Baltimore in preference to New York?' The reply came, 'Transportation to Baltimore is half a cent per bushel less than to New York'. And so the corn went to Baltimore; and just so much was added to her commercial strength by New York capital. This corn was not controlled by capital; it could select its own market, and having selected Baltimore, because the sum of \$1000 could be saved in transportation charges, New York capital followed it there for the reason that it was idle and Baltimore offered it employment. Follow this transaction a little further. Six vessels will find in Baltimore six cargoes of corn awaiting them; and she will receive the inward cargoes of those six vessels because she can supply them with return freights. Now what think you? Was it Baltimore's cheaper transportation charges, as against competing points, or New York's idle capital that procured for the former all the advantages arising out of this corn shipment?"

According to this statement it would appear that capital is impotent to attract trade, when opposed by the magnet of cheap transportation. But New York sustained a considerable loss in this single transaction, for if the corn in question had gone to New York at the same rate of transportation as charged to Baltimore, $6\frac{1}{2}$ cents per bushel (including the terminal charges in New York), or \$13,000 would have been the actual amount contributed for transportation within the borders of that State. Of this amount the State of New York would have received for tolls \$2,000, and the industrial portion of the population \$11,000. These figures only represent the measures of the positively known loss. The loss arising from the non-arrival of the six vessels with their incoming cargoes, the handling and storing of these cargoes and their final sale and transportation in great measure into the interior, can only be matter of conjecture, but must also be taken into the estimate of the total loss sustained.

In the matter of cereals for exportation, much progress has been made in the direction of substituting maize in the place of wheat and rye as a bread grain among Europeans, and as a substitute for oats and other horse feed, it is gradually gaining favor by its cheapness. Yet there are obstacles to the extension of this trade on account of the ruinous proportion of the transportation in the element of ultimate cost. It is cited that Kansas, Nebraska, Iowa and Illinois furnish corn for shipment to Liverpool from Chicago. The average value of the crop for those States is twenty-five cents per bushel on the farm and the cost of shipment to Chicago as much more. With the freight added from the farm to Chicago, the transportation from the farm to Liverpool would be about 150 per cent. of the original value, and the commissions and profits another 50 per cent. So we are not surprised to find the average value of Chicago No. 2 corn in Liverpool 77 cents per bushel, three times the home value. The cost of carriage is too great to warrant the expectation of great extension of this trade. On the contrary, the economies of transportation, the increasing use of meats in foreign countries, and the opportunities in catering to the tastes of foreign consumers in the preparation of food products, lead to the belief that the trade in these condensed forms of maize is as yet in its infancy, and destined to great expansion in the future.

The United Kingdom derived from 3,148,915 acres about 104 million quarters of wheat. If consumption be $5\frac{1}{2}$ bushels per head the United Kingdom will need 102 million bushels of wheat from abroad, and this figure appears to be reasonable, because the minor food supplies of Great Britain, are not brilliant, thus throwing a greater burden on wheat. Yet Great Britain, excluding Ireland, had 5,255,139 acres in barley, or 7.7 per cent. less than in 1881, with a much better crop. England, Wales and Scotland had 2,833,815 acres in oats, or 2.3 per cent. less than in 1881, with a very rich crop.

Elevator News.

A large grain warehouse is being built at Lisbon, Dak.

A new grain elevator is to be built at Plattsmouth Neb.

J. J. Hutson, grain dealer, South Salem, Ohio, has sold out.

R. McBurney & Sons, grain dealers, Philadelphia, Pa., have suspended.

G. Gifford Stillwell, commission grain dealer, New York City, has failed.

John F. Nixon, grain dealer, Attica, Ind., has been burned out; partly insured.

J. F. Lester & Co., commission grain dealers, Chicago, Ill., have dissolved partnership.

Chas. D. Hamill succeeds Van Inwagen & Hamill in the grain commission business in this city.

C. J. Stevens, of C. J. Stevens & Co., grain warehouse men, Livermore, Cal., has lost \$22,000 by fire.

Thomas Harding has bought out the business of Cook & Co., grain dealers, Las Vegas, New Mexico.

Case & Co., grain commission agents, Cincinnati, O., have dissolved partnership. C. G. Case settles.

Gilbert & Brega, grain commission agents, Chicago, Ill., have dissolved partnership. C. W. Brega continues.

Webster & Comstock Mfg. Co. of this city are manufacturing a car-load of buckets for the new elevator at Peoria, Ill.

Kerfoot Bros., of Des Moines, Iowa, finished a fanning mill, iron elevator boots, cups, belting, etc., for the new elevator at Herndon, Iowa.

The 30,000 bushel elevator at McGregor, Iowa, was recently moved two miles by rail and placed on new foundations without injury.

Power & Turle, Commission grain dealers, New York City, have formed a limited partnership with special capital of \$25,000, to September 3, 1884.

A. C. Herbert, of Wauke, Iowa, has recently added to his facilities for handling grain a portable mill purchased of Kerfoot Bros., Des Moines, Iowa.

The St. Louis Grain Transfer and Weighing Company is completing its transfer house on the line of the Belt R. R., owned by the Illinois & St. Louis R. R.

Wilder & Fluent, of Otranto Station, Iowa, for changes made in their mill, purchased of Kerfoot Bros., of Des Moines, Iowa, cotton belting, elevator cups, etc.

Turner, Tuttle & Co.'s mill and Armington's elevator at Atlanta, Ill., with 6,000 bushels of grain were burned on October 26. The loss is \$28,000; fully insured.

Stephen & Co.'s elevator at Collingwood, Ont., with its contents, was burned on the night of November 5th. The loss is estimated at \$15,000; partially insured.

Grafton, Dakota, has a new elevator with a capacity of 150,000 bushels, owned by Edwin Morris. The machinery was furnished by H. P. Treat, of St. Louis, Mo.

A portion of one of the largest elevators at Grafton, Dakota, fell recently and dropped several thousand bushels of wheat to the ground. No lives were lost.

A large portion of the machinery has already been put in the Central Elevator at Leavensworth, Kan., and the entire work was to be completed by November 15.

J. T. Cowan has completed his elevator at Paton, Iowa. The shafting, pulleys, belting and machinery throughout were purchased of Kerfoot Bros., of Des Moines, Iowa.

W. C. Dewey, banker and dealer in grain at Plano, Ill., is reported to have failed. He has been in business about ten years. His liabilities are estimated at \$100,000.

A. W. Linaberry & Son, of Bloomfield, Iowa, in making repairs in their mills, are using the Caldwell Iron Conveyor purchased of Kerfoot Bros., of Des Moines, Iowa.

The Erie Elevator at Buffalo, N. Y., one of the largest in the country, is being rebuilt. The Webster & Comstock Mfg. Co., have the contracts for the buckets and Bolts.

We were misinformed as to the name of the architect of the new half million bushel elevator at Joliet, Ill. His name is John A. McLennan, not Jas. Leman, as was erroneously stated.

J. C. Johnson, engineer of the new elevator at Willmar, Minn., was caught in the machinery, his right arm being broken between the elbow and wrist, and the right hand terribly lacerated.

Chas. W. Jaques, elevator owner at Pleasantville, Iowa, has failed. He recently gave a chattel mortgage to R. W. Dunham on \$8,500 to secure losses on the Board of Trade of Chicago.

The Big Four Elevator at Cincinnati, the Detroit Union Elevator, Detroit, and the Kentucky Public Elevator Co. of Louisville, Ky., have adopted the Lenox Car-loading Spouts, manufactured by the Webster & Comstock Mfg. Co., of Chicago.

Hamilton & Duey, grain dealers, Ashland, Ill., have failed. Mr. Duey was attached for \$2,000 realty mortgage to Silas Hexter to secure notes. Mr. Hamilton transferred real estate for \$4,450.

S. A. Mohr & Co., grain dealers, Sitzsburg, Pa., have dissolved partnership. Mr. L. Held and Allen S. Wenner will continue the business at Fogelsville, Pa. The firm style has not been announced.

The Gilbert Starch Works of Des Moines, Iowa, have recently made changes in their works, putting in 100 feet of 9-inch Caldwell Conveyor, cotton belting, cups, etc., purchased of Kerfoot Bros., Des Moines, Iowa.

Gen. Rosser is at the head of a project to build a railroad from Winnipeg to Hudson Bay, by which the grain of the Northwest will find its way to Liverpool. Hamilton Jukes will soon take out a party of surveyors.

George Woodruff, aged 70 years, a resident of Joliet, Ill., since 1836, and President of the First National Bank, while going over the new elevator there October 26, fell into one of the bins, a distance of ninety feet, and was killed.

Downey & Preston have commenced the rebuilding of their elevator at Belleville, Ont. The elevator will be constructed of heavy plank, covered with corrugated iron, and will have a capacity of 75,000 bushels. It will probably be completed by November 15th.

The Union Depot Elevator and Storage Company of St. Louis are putting into their new elevator ten sets of the "Coker" Automatic Power Shovels for unloading cars. They are furnished by the Webster & Comstock Mfg. Co., of Chicago, who control the patent for the U. S.

The Mount Vernon Mill and Elevator Co., recently organized, succeed Fuhrer, Boyce and Co., of Mt. Vernon, Ind., grain dealers. The new firm write us that they are taking steps for the erection of a 200 barrel roller mill and a 40,000 bushel elevator, to be completed by next June.

The new elevator at Fort Erie, at the Canadian end of the international bridge, is now in working condition. The canal-boat Homer, which finished loading lately with 8,000 bushels of wheat, was the first boat handled there. The elevator is owned by Baxter Bros., and has storage capacity for 75,000 bushels. Grain is received by the Grand Trunk, Canada Southern, and Great Western Railways, and also from farmers' wagons, and delivered to boats for shipment East. The freight on the Homer's cargo to New York was 7½ cents.

The large grain elevator at Bridgeport, Conn., owned and occupied by John Hurd, was totally destroyed by fire with its contents on October 13. The building was a wooden structure, 50x40 feet, and 100 feet high, covered with slate. The building contained 50,000 bushels each of corn and wheat, and 30 tons of mixed grain. The total loss on building and contents is about \$135,000, on which there is an insurance of \$17,500 on building and 25,000 on contents. The cause of the fire is unknown but not thought to be incendiary.

Mr. E. M. Sanford, of East Dubuque, Ill., has recently made the following shipments of machinery: A Flax Seed Separator to the Boon Linseed Oil Mill Company, at Boon, Iowa; two No. 3 Mill Separators to the Iowa Iron Works, Dubuque, Iowa; one No. 1 Mill Separator to Heimerdinger Bros., Golden Gate, Minn.; one No. 1 Mill Separator to H. E. Johnson, Marshland, Wis.; one No. 2 Mill Separator to Thomas Lytle, Nishnabotna Valley Mills, Iowa; one No. 1 Mill Separator to Clark Lager, Sidney, Ohio; one No. 1 Separator to E. Kirtland, & Co., Rochester, Ind.

A disastrous fire, supposed to have been the work of an incendiary, occurred at Toronto, Ont., early in the morning of November 9th. It commenced in a little outhouse adjoining the Northern railway docks and elevator. Before being noticed, it had spread to the warehouse, from all parts of which the flames were bursting out before the fire brigade arrived. The docks and merchandise were damaged to the extent of \$75,000. A cargo from the propeller Armenia discharged the evening previous, of 300 tons was destroyed. The loss is mostly covered by insurance.

The New York Tariff Association recently adopted the following ratings on the New York elevators:

Contents of Brooklyn Central elevator.....	125
" Dow's elevators, known as Nos. 2, 5 and 8.....	125
" Dow's stores Nos. 1, 3, 4, 6, 7 and 9.....	75
" Columbia stores Nos. 1, 2 and 3.....	125
" Hudson River elevators A and B.....	250
" Erie elevator.....	250
" Pennsylvania elevator.....	250
" U. S. Warehousing Co.'s elevator, brick and iron building, foot of Degraw street, Brooklyn.....	50
" Tripp's elevator, foot of West 34th street.....	250
" Paine's elevator, 129th street, east of 3d avenue.....	250

Mr. G. A. Pillsbury, of the well-known elevator firm of Pillsbury & Hulbert of Minneapolis, and owner of the large mills at that place bearing his name, has made an offer to the Minnesota academy of this city which should call out the earnest support and sincere gratitude of every one who has the interest of our city, as well as the academy, at heart. Mr. Pillsbury will build an addition to the academy, containing what is much needed, another recitation room, and build what is still more essential, a young ladies' boarding hall, provided the present endowment be raised to \$25,000. — *Owatonna (Minn.) Herald.*

Here is the kind of a letter that F. Dambrowitz & Co., of Lewiston, Minn., sent to a Winona paper about a month ago: "Bad time, but we shall repay you for the barley ring. As soon as the wind will be strong enough, all the elevators in Winona will be on fire; yes, it may happen as in Chicago, and so much the better; for if you have men on the market place to measure the wood, you might also have men, who will say to the grain dealers: 'So much is grain worth in Chicago, and so much for the freight, therefore you must pay more, if not, Winona will be set on fire, and Lewiston will be dealt with in the same way. The oath is given and will be executed.'"

A correspondent of the *Inter Ocean* of this city tells the following about the Minneapolis Millers' Association: "The purchase of wheat has been mainly done through the Minneapolis Millers' Association, composed of millers alone, who make their purchases through the agents located at all railroads from which the supply of wheat is drawn, taking warehouse receipts for the same. Comparatively little wheat is offered for sale on the market, the business being transacted by warehouse receipts. The price being made by the Association, few changes occur, so that an advance or decline in the speculative market does not affect this. From the organization of the Millers' Association to the present, they have paid 5 cts. per bushel above Chicago and Milwaukee quotations, deducting freight to these cities. The association has accomplished its object in reducing the cost of purchasing. In 1881, wheat in January was 88 cents No. 1; 85 cents No. 2; lowest price. In October it was highest; \$1.36 No. 1, and \$1.33 No. 2. At the end of the year it closed at \$1.20 No. 1, and \$1.15 No. 2.

Among the prominent real estate trades closed the past month in this city, is that for the vacant lot on North Water street, near Dearborn, 80x200 feet, immediately adjoining the Northwestern Warehouse. It will be remembered that this warehouse was bought by Mr. Hiram Sibley of Rochester, N. Y. in July last, as a necessary adjunct to his seed business here. So rapidly has the business of the Chicago house increased, that he has been compelled to buy the lot mentioned above, and in addition a lot fronting on Clark street, sixty feet in width, running back to the main lot. He will at once proceed to erect a nine-story warehouse, covering the entire lot, and he will also add four stories to the Northwestern Warehouse, making that nine stories also—making a building of 180x200 feet, nine stories high, and giving over eight acres of floor room. The main floor of the Clark street extension will be a drive-way entrance to the main building, making it the most accessible warehouse in this city. A portion of the new building will be a bonded warehouse, run by the firm. When this improvement is completed, it will make Mr. Sibley's real estate investments in this city nearly one-half million of dollars.

Messrs. Chas. Kaestner & Co., of Chicago, Ill., have put in the Kaestner Patent Portable Grist and Feed Mill and elevator machinery for parties as follows: T. G. Mandt, Richland Center, Wis., a 24-inch mill; R. H. Terpell, Toxa, Ill., a 20-inch; Amana Society, South Amana, Iowa, a 24-inch; C. Andres, New Bremen, Ill., a 30-inch, and elevator machinery complete; G. L. Mills, Greene, Iowa, a 24-inch, and elevator machinery; L. A. Porter, Rexford, Mo., a 20-inch; Rock River Paper Co., Beloit, Wis., a 20-inch; A. Snyder & Co., Radford, Ill., a 24-inch mill and elevator machinery; O. L. Packard, Milwaukee, Wis., a 16 and a 20-inch; J. M. Hucks, Marble Rock, Iowa, a 24-inch, and elevator machinery; N. C. Foster, Fairchild, Wis., a 30-inch mill and complete machinery for a 30,000-bushel elevator; E. M. Ranorth, Fargo, Dakota, a 16-inch; Langford & Ross, Eylar, Ill., elevator machinery; James Kerr, Highland, Iowa, a 16-inch mill; Fred Volz, Chicago, Ill., elevators and machinery; Turner & Bellamy, Nashua, Iowa, a 30-inch mill; R. G. Schuler & Co., Minneapolis, Minn., a 24-inch; Chisholm Bros. & Gunn, Minneapolis, Minn., a 20-inch; N. K. Fairbank, Chicago, Ill., a 30-inch; S. A. Cross, Norman, Iowa, a 20-inch; Schutte & Quilling, Menominee, Wis., a 16-inch mill, and power; Coffey & Haywood, Bloomfield, Iowa, a 30-inch; Tyler & Forrest, Marion Junction, Dakota, a 20-inch mill.

The Cincinnati *Commercial* has the following in regard to the wheat trade of Terre Haute, Ind.: "The wheat business of Terre Haute is very large, this being the most extensive flouring point in the State. At the present time there are five mills in operation, with capacities ranging from 150 to 500 barrels per day. At the present time they are turning out in the aggregate fifteen hundred barrels per day, or about 600 more than Indianapolis and 900 more than Evansville. One mill here does a business of \$1,000,000 a year. In addition to the flour manufactured, large quantities of wheat are purchased for shipment. The mills consume nearly all they purchase. Elevator "A" is owned and operated by the Terre Haute Elevator Company. It is located conveniently for receiving and shipping on any of the converging railroads. It is a stock company regularly incorporated under the laws of Indiana. The business of the company consists in the buying and selling, storage and transfer of grain. It has ample capital, besides almost unlimited credit on which to base its operations. The annual aggregate of grain purchased is about 1,500,000 bushels, the average value of which will closely approximate \$1,000,000. The officers are Samuel McKeen, of McKeen & Co., bankers, President; W. P. Ijams, Auditor of the Union and Belt Railway Companies of Indianapolis, Secretary; J. B. Harris, Treasurer, and N. H. Hamm, General Agent."

Mechanical.

How to Lace Belts.

Begin to lace in the center of the belt, and take care to keep the ends exactly in line, and to lace both sides with equal tightness. The lacing should not be crossed on the side of belt that runs next the pulley. Thin but strong laces only should be used.

Oil for Belts.

It is claimed that boiled linseed oil is best for rubber belts, as all animal oils are injurious, causing them to peel up and leave the fabric bare. The oil should be applied while the belt is running slow, so that it will be well distributed. This way of oiling will not interfere with the business of the mill, as it can be done at night or stopping time.

To Mend a Rubber Belt.

One method to mend a rubber belt is to melt common isinglass in water, the same as ordinary glue; add a little alcohol and apply hot. Another is equal parts of shellac and liquid india rubber, the shellac to be dissolved in alcohol by putting both in a tightly-corked bottle, standing in a warm place, and shaking occasionally. It should be quite thick. After a rubber belt has begun to wear out, it is better and cheaper to get a new one than to mend it.

Starting an Engine.

Before starting an engine always warm up the cylinder by admitting the steam to both ends. If a marine engine, see that everything is clear of the engines and propeller, and that the cocks and valves are all right. Whenever an engine is stopped for any length of time, examine all its parts for the purpose of seeing if they are in good order. Warm the boiler gradually. Do not get up steam from cold water in less than six hours. If possible, light the fires over night. Nothing turns a new boiler into an old one sooner than getting up steam too quickly. It hogs the furnace tubes, leads to grooving, strains the end plates and sometimes rips the rim seams of rivets at the bottom of the shell.

Balancing Machinery.

Some singular ideas, says the *Mechanical Engineer*, exist as to the balancing of moving parts of machines, and the way to accomplish it. One says that an engine may be balanced by putting a belt on a pulley on the shaft and driving it from the line shaft. This will not answer, for the reason that the impulses given by the steam and the motion resulting, are irregular—in nowise akin to the steady movement of a line shaft. The theory of balancing machines is to drive them by the agents which move them at the speed they are to move at in regular work. Centrifugal force is not a constant quantity, but increases as the square of the velocity. Often persons waste time in balancing parts of machines that are improperly constructed, such as five-armed fly-wheels, or pulleys; adding counterweights, or increasing the sizes of other parts to meet supposititious necessities. No man can lay down practical instructions for balancing engines in general, for they vary so much in detail and velocity that every engine will have to be balanced by itself for the speed it is to run at.

Lubricating and Lubricants.

To lubricate economically, and at the same time efficiently, the jointed parts, valves, slides, steps, journals and gears of any kind of machinery driven by steam is the aim of every thinking mechanic who superintends the operation. Good lubricants will prevent abrasion and carry away the heat generated by friction, and which would injure the machinery. They are ordinarily classed as oils and fatty matter, mineral and metallic compositions. The oils and fatty matter may be used separately, the mineral matter can only be applied as a lubricant in conjunction with the former, consequently are not true lubricants. The metallic compositions as applied in some instances act as an interposing cushion, and help to convey the frictional heat to the absorbing lubricant as much as the stream of water, sometimes applied, serves to carry away the heat which a heavy lubricant on a heavy journal absorbs more rapidly than it can give off. The liquid lubricants are the animal, vegetable, and mineral oils, the latter consisting

principally of tallow, or lard, or composition of both, with lime, sulphur, lead, asbestos, graphite, soapstone, etc. The former are principally used on machinery of slower motion and heavier weight. Good lubricants should possess the following characteristics: 1. Sufficient body to keep the surfaces effectually from abrading each other. 2. Greatest power for absorbing and giving off the frictional heat. 3. Least inclination to decompose, by either atmospheric influence or temperature, or they should be clear and unctuous, free from acid, gum, or grit, of low gravity, and should retain a uniform consistency at all temperatures. It is difficult to find lubricants that possess all these characteristics combined, and inferior ones are often preferred to better ones from want of knowledge about them among those who are in charge of their use. It is not unusual, for this reason, to see thick, heavy oils used where more limpid ones would be appropriate, and vice versa, or unsuccessful attempts made to force good lubricants to work through contrivances inadequate to the requirements of the case, or from false economy, the endeavor to make lubricants of poor quality perform effective work where better ones would barely suffice. A little attention to, and more earnest investigation of this subject by manufacturers as well as employees, would do much towards the use of good lubricants only, and thereby save machinery and capital.—*Trade Review*.

GRAIN PRICES AND CORNERS.

It is beyond question that we have this year the largest crops of wheat and other small grains ever raised in this country, and at present the prospect is fair for an average corn crop. It is also true that prices are not down to the lowest extremes. Corn is still above an average price, and wheat is not as low as it has been several times in the past few years. In Chicago No. 2 wheat for September is now 99c., which is from 1c. to 2c. above the average price of January, 1881, and more than 20c. above the average price of September three years ago. And yet all the influences that could be brought to bear upon prices in this country for the last two months, with a view to affecting or changing them artificially, have been exercised in the direction of depressing them. The aggregate yield of the wheat crop, at least, has been exaggerated by such extravagant estimates as 600,000,000 bushels. But the most potent influence has been the aid which the speculators on the bear side have received from the policy of the Chicago Board of Trade. The Board undertook to suppress corners in grain in the market, and for that object adopted new rules in regard to the delivery of grain on time contracts, and also adopted a new policy in the administration of the previous existing rules in regard to corners. By this last-mentioned policy the bears were encouraged to repudiate their contracts when the market went against them, and appeal to arbitration committees upon the plea that prices were artificially advanced by reason of the market being cornered. While it was undoubtedly true that this was the case, the mistake of the Chicago Board of Trade was in ignoring the fact that it was the bears themselves that made the corner. There would have been no corner in July if the bears had not sold more wheat than could possibly be drawn into that market, even by the high prices that prevailed. The fact that they did so oversell the market, and that the Board encouraged them not only to do so but to repudiate their contracts and appeal to an arbitration committee, as in the case of the April corner—placed the Chicago Board of Trade in the position of using its entire legislative and disciplinary power and influence in the direction of depressing prices. It would, perhaps, be argued that this was only local to that market, but it is also true that Chicago is the centre of grain speculation in the United States, all other markets following its prices to a greater or less extent. Very recently the Board seems to have discovered its error, and the arbitration committee on the July wheat corner, in returning \$1.35 as the price at which the shorts should settle their defaulted contracts, seems to have made an attempt to re-establish the idea that business men must live up to their contracts, but that idea got so badly unsettled in Chicago that it seems hard to re-establish it. The bears in the market now appeal to the courts, where questions are decided by precedent rather than by principle, and where among the mummified remains of obsolete things there is a notion that the lower the price of bread the better for those who do not produce it.

Corners, of course, are not to be commended—they disturb the legitimate course of the markets—but the idea that there is anything more dishonorable or immoral in running a corner than there is in overselling the markets had its origin in England, where there is always a short supply of food. In this country, where there is always an over supply for local consumption, and always an exportable surplus to sell to foreign markets, the conditions are reversed. There is, in fact, no moral question at issue in the case except the one of mercantile integrity in the fulfilment of the contracts entered into with a full understanding of the possible contingencies of the case.

AMERICAN COMPETITION WITH EUROPEAN GRAIN.

The effects of American competition in the markets of the world and the facts of its rapid growth are so apparent, that they have for a long time stimulated the pens of learned men, and books and pamphlets on the subject have poured forth from the press of the English and prominent European nations in floods. The practical farmers of Europe are becoming fully impressed with the fear, that American grain, cattle and meat, are so filling their markets, as to threaten them with impoverishment or ruin. The question asked is: What are the circumstances and causes that are producing this result? The Russian press of St. Petersburg has recently discussed the matter in a broad comprehensive spirit. The fact is noted that during the last ten years, while the European grain crops have been short, American competition in this trade has been so effective as to create large demands for tariff protection. These demands have been in part complied with. The nations which feel this most are those which generally have a surplus for export, as Russia, Austria and the countries on the Danube. Upon the sale of this surplus Russia depends to pay the interest on her foreign loans, and for her imported goods, while in it are involved the interests of 70,000,000 farmers, who are being driven from the markets.

The New World has been endowed by Nature with her richest gifts in soil, mineral wealth, and the natural means of transportation; the Old World has peopled her with industrious, hardy, freedom-loving citizens, and European capital has been subservient to their call. The value of every emigrant to America is variously estimated as equal to a capital of from \$8.00 to \$1,128 which would add, at the lower estimate, over two thousand million dollars to the capital of the United States during the last ten years.

The population of the States has doubled in thirty years, while its grain production in the same period has increased five-fold. The grain market of Great Britain is in her hands, while she also sends grain to France and Germany; American "corn" also appears even at Fiume, the Austrian grain exporting port, while the Russian distillers of alcohol are using American grain.

Among the advantages of the American producer is their immense system of lake and river transportation, with their railroads and canals, enabling them to ship grain from Chicago to Hamburg at a lower rate than the latter port can obtain it from Pesth, Austria. In 1880 Russia supplied Germany with 24 per cent. of her importation of wheat, and the Americans 34 per cent. Of barley and corn Russia supplied, at that time, respectively ten per cent. and two per cent., while twenty-two per cent. of each came from America.

This success, however, is not attributed alone to natural advantages. The free American citizen of a free country has done more for his own welfare than nature has done for him. The government costs but little; they have no huge, expensive standing armies; soil tillers can readily procure all the good land they require. They are educated, all of them, and with their labor-saving machinery harnessing to their need the forces of Nature, they find time and use for mental work. Some say that this state of things cannot last, and that America will soon need all her surplus. "But Europe can be bankrupted ten times before the United States will be densely populated." The salvation or Russia can only be effected by adopting American methods, education, modes of transportation, and her system of a free and enlightened government.

Of the entire buckwheat crop of the United States (11,000,000 bushels), Pennsylvania produced nearly one-half. No wonder that nearly every man in the Keystone State itches for office.

Legal Notes.

Refusal of Draft.

The mere fact that a creditor once refused to accept a draft on a certain person in payment of his claim will not justify him after he has received such a draft some six weeks afterward without objection, to treat it as a nullity and disregard it, and neither present it to the drawee nor return it to the drawer for the space of a year. By so treating the draft and so neglecting to present or return it the payee makes it his own and discharges the drawer. —Allen vs. Elder, Sup. Ct., Wis.

Contracts.

To invalidate a contract on the ground of the illegality of the transaction, such transaction being what is known as a gambling transaction, in the sale of grain, etc., it must be shown by a preponderance of evidence that both of the parties to such contract bought or sold property with the knowledge and purpose that no actual delivery of the property which was the subject of the sale should be made; or in other words, both participate in the intention, which, if executed, renders the transaction illegal. —Murray vs. Ochletra, Sup. Ct., Iowa.

Discrimination in Freight Rates.

A railroad, though owned by a corporation, is nevertheless constructed for public uses, and in a qualified sense is a public highway. Hence everybody constituting a part of the public, for whose benefit it was built, is entitled to an equal and impartial participation in the use of the facilities it is capable of affording. Its first and primary obligation is to the public, and the company has no right to make unreasonable and unjust discriminations. A discrimination in rates of freight between the same points, resting solely upon the basis of the amount of freight supplied by the respective shippers is unreasonable and unjust.

Delivery of Grain at Elevators.

The Supreme Court of Illinois in the case of Jesse Hoyt et al., against the Chicago, Burlington & Quincy Railway Company, the opinion filed September 26, 1879, held: 1. Under the former decision of the court it must be held that a railway company is legally bound to deliver grain in bulk to a consignee at any elevator on its line of road, or which stands on any side track owned by the elevator which connects with the road; and by the terms of the constitution of 1870 any company is required to permit side tracks leading to elevators, coal, goods, etc., to be connected with its roads. 2. A railroad company can not be compelled to deliver grain at an elevator upon a side track not belonging to the elevator, and which the company neither owns nor has a lease of nor a license to use, even if it has used such a track without the objections of the owner. It is not the intention of the constitution to compel a party to do an illegal act. 3. There being a side track of about fifteen feet in length belonging to another railroad company which connected the Union elevator with appellee's track, and appellee having no contract permitting it to use such side track, as a matter of right it can not be compelled to deliver grain at such elevator, although it has sometimes done so without objection from the company owning such track.

Grain Options in Iowa.

An Iowa correspondent writes: "The option business of Chicago grain dealers does not find much favor with the courts. The Supreme Court of this State recently sat down on it hard. It appears from the record that one J. C. Pike was engaged in buying and shipping grain at Vinton, in Benton county. His consignees or agents in Chicago were Lowe Brothers & Co., who operated on the Board of Trade. Pike also speculated in options through this firm. One W. H. Young furnished Pike funds with which to purchase corn, and therewith he bought nearly 13,000 bushels, which with other corn was stored in warehouses owned or operated by him at Vinton. In his option deals in Chicago he got on the wrong side of the market, and Lowe Brothers and Co. advanced considerable money to keep up his margins. To secure them for the money so advanced and for further losses which might be sustained in options, he gave them four warehouse receipts, covering grain in his warehouse. The indebtedness for which

they were given was made on what purported to be sales and purchases on the Board of Trade in Chicago. The property was bought or sold for future delivery. None of the property purporting to be sold was ever offered or tendered, Mr. Young, doing business on the principle that buying and selling should be represented by tangible property, took possession of the corn purchased with his money, whereupon Lowe Bros. & Co. brought an action in Benton County District Court against Young for conversion, and set up title in the corn by virtue of the warehouse receipts given by Pike. There was a jury trial and general verdict for defendant, Young, and a special finding that the transactions of Lowe Bros. & Co. on the Board of Trade of Chicago were gambling transactions. Motion for a new trial by the plaintiffs was overruled, and plaintiffs appealed on the ground of erroneous instruction of the court below. The Supreme Court did not pass upon this allegation of error, declaring it was immaterial whether a lien was created or not, but based its decision upon another ground. The Court says it is quite clear from the testimony that Pike neither expected to receive or pay the differences in price upon final settlement. The articles sold or purchased were not delivered in fact. The jury found that the transactions upon the Board of Trade in Chicago were gambling transactions. The transfer of the grain to plaintiffs, whether as security for or in payment of, a liability growing out of a gambling transaction was invalid and without consideration. The verdict cannot be disturbed, as unsupported by the testimony."

FUTURES AND THE LAW.

A correspondent of the Chicago Times, who claims long experience as a member of the Board of Trade, presents practical objections to the recent decision of the Supreme Court of Wisconsin on grain dealings for future delivery. He assumes the purport of the decision to be that all such sales on the Board of Trade are of the nature of gambling; which decision, if sustained in this State, would seriously, he thinks, cripple a very important and very large business, whereby from five to ten per cent. is added to the value of all the provisions in the northwestern markets. This use of speculative capital relieves the farmer of his cattle for low freights and for ready sales, keeps our warehouses filled, and promotes an even delivery, thus sustaining prices. Speculative accumulations in times of plenty steadies the market, helps the producer and dealer, and while individual speculators, as in all businesses, may be ruined, is a general benefit to the interests of both.

The attention of the public is called to the fact of settlements being made by payments of differences instead of the delivery of grain, by the conditions which maintain where a "corner" renders the obtaining of the grain, by the seller, impossible, owing to the acts of the opposite party in the transaction. Here the rules of the Board of Trade compel a second contract which, the writer claims, is in effect bad, whereby the first is cancelled and the difference is paid by arbitration, or the member expelled. This new contract is not voluntary and is illegal. In its place, when the performance of the contract is rendered impossible, the time should be extended, under proper penalties, but the party should be held to the final carrying out of the spirit of the original contract. The stress laid upon the element of time is itself a suspicion of fraud. Shippers and millers, who buy mostly for cash, are not injured, while the increase of the penalty may be so made as to completely protect them.

Another way in which the public are led to look kindly on the transactions of the Board is the habit that has arisen among brokers of assuming their customers' trades, and the law suits often resulting. A member selling on the Board, must, by the rules, intend delivery, no second contract is foreseen. The customers make settlement, without knowledge of these rules, which the member accepts. Many houses employ settling clerks to make new contracts and settlements, thus assuming their customers' trades, for the simple purpose of facilitating business. The settling room has been suggested, and would be similar in its principles and practice to the clearing houses of banks in their exchanges of checks, orders, etc., and if properly understood by the courts and the public, would be regarded in the same light, and have no more effect upon the legality of these contracts or like regard in which they are held.

TWO VIEWS OF GRAIN SPECULATION.

At a meeting of the special Senate Committee of the New York Legislature, for investigating the matter of speculative dealing in grain, held in New York city, last spring, the views of a former president of the Produce Exchange were obtained as well as those of a present member, a heavy flour merchant. The former, Mr. Isaac H. Reed, stated it as his belief that the system of future sales, though liable to abuse, was one of immense advantage to business, and to the farmer, who could make sales when the market ruled high before his grain was harvested. He thought any legislative interference would be hurtful: it would materially diminish the volume of the business of the Exchange, unless the law was evaded, as these sales are done on commission.

Mr. Charles Partridge, flour merchant, presented an array of facts and figures going to show that these speculative sales were disastrous to the produce trade, and to the public welfare. Comparing by months the sales of the Produce Exchange from July, 1879, to April, 1882, the whole amount of Cash sales was \$244,737,000, against a total of \$1,154,267,000 in options. This represents but a small fraction of the capital used in speculation in food in the country, as the Board of Chicago had double the amount of grain sales, and that of Milwaukee fully equal to that of New York; while this speculation was not limited to grain, but was carried on also largely in pork and lard. There is a combination, Mr. Partridge says, of moneyed men at all the great grain centers, who have a mutual understanding, buy grain largely, deal in futures and actually control the market, ruining legitimate business, which cannot compete with gambling. As an example, by these procedures, the market price of red winter wheat was raised, during October, 1879, about thirteen cents per bushel. No grain is delivered in these transactions or intended to be. Flour for the past two or three years has been from one to two dollars a barrel dearer than it would have been except for this unhealthy speculation, and wheat has probably been raised fifty cents a bushel above its normal value. Many of the troubles and strikes of laboring men have these unnatural high prices of food as their cause. The evil effects fall on all food consumers, bearing most heavily on the poor, as well as upon the business of the whole country, producing market uncertainties, destructive of all reliable calculations on the part of shippers and dealers. In the opinion of Mr. Partridge, illegitimate or speculative dealing in food products, which are the life of the country, is opposed to public policy and morals, and there should be affixed to it a penalty of fines or imprisonment.

Mr. Chamberlain, the Ohio statistical agent of the United States Department of Agriculture, has sent the following estimates to Washington, based on returns from all the counties of the state of Ohio. Total number of bushels of wheat, 45,787,811; rye, 406,151, oats, 18,435,779; barley, 1,337,369; corn (probable), 87,005,280; potatoes (probable), 89,000,000. Per cent. of an average crop: Sweet potatoes, 100; tobacco, 74; sorghum, 92; corn, 87; potatoes, 101. Yield per acre, bushels: Wheat, 16.7; rye, 15.8; oats, 28; barley, 19.9. The weather is damp and hot, so that much of the corn considered hopeless a month ago is now rapidly hardening. The average crops in Ohio for a period of ten years are about as follows: Wheat (average of five years), 40,000,000 bushels; corn, 100,000,000; rye, 420,000; barley, 1,280,000; potatoes, 8,754,000; tobacco, 275,000,000 pounds.

The New York Evening Post says: "Somebody at the West who reports the receipts of grain at Chicago seems to be lying (under a mistake, possibly), and the misstatements seem to be always on one side, viz., On October 31, it was telegraphed from Chicago, and the figures were posted on the Produce Exchange, that the receipts of corn at Chicago, by canal, were 162,170 bushels, in addition to the amount received by rail. One hour afterwards a dispatch came canceling this report. There were no receipts at all by canal that day. Again this morning (November 4), it was telegraphed from Chicago, and posted on the bulletin-board of the Produce Exchange, that the receipts of corn by canal, at Chicago, this morning were 226,408 bushels, in addition to the amount by rail. Within an hour this report was canceled, and it was understood there were no receipts of corn at Chicago to-day by canal. All this has the appearance of some body being either 'corned' or 'cornered'."

THE NEW ELEVATOR AT BUFFALO, N. Y.

From a Buffalo paper we take the following account of the new elevator lately finished there: Brief reference has been made before of the construction and first operation of the new grain elevator built on the Blackwell Canal by the Connecting Terminal Railroad, a corporation formed last year to provide terminal facilities along the water front for the various new railroads entering this city. The new house, although not entirely completed, is far enough advanced to give a clear idea of what it is, and in the following article will be found the first correct description of this perfect and modern grain house. The important work yet to be done is to encase the structure with a brick wall and introduce the electric light, which is deemed the only safe way of lighting and a sure preventative of elevator-dust explosions.

Work upon this mammoth grain warehouse was begun a year ago this month, and has been pushed with great vigor ever since. In the construction of the building the greatest care was observed and every detail was carefully noted. The foundation is of the most substantial kind. About 2,800 piles, averaging 25 feet long, were first driven down, and cut off one foot below low-water mark. Over these were built strong stone piers, each nine feet four and one-half inches in height. With the completion of this, the work of building the superstructure was commenced, and a perfect and imposing monument to Buffalo's commerce is the result. The main building stands on a plot of land 156 feet front and 144 feet deep. The structure rises to the height of almost 145 feet. Included in the building are over 4,000,000 feet of lumber, a perfect forest of timber. There are 110 bins for the storage of grain, each 14 feet square, and of an average depth of 60 feet.

There are several features in the elevator worthy of special notice, as no other granary in Buffalo, where elevator building is a fine art, has them. One of these is a portable tower, the second one ever built, the other being attached to the Anchor Line elevator at Erie. By means of this movable tower the handling of grain can be greatly facilitated, and two hatches of a vessel worked at the same time without shifting. The portable tower is 150 feet high, 35 feet front and 27 feet deep. It rests upon 12 pairs of heavy car trucks and runs upon four tracks, allowing it to move 22 feet. It can be moved by hand with the greatest of ease, and is operated by one of Dunbar's tri-cylinder engines, steam being introduced from the main building through a pipe having four elbow joints. By means of this extra engine a vessel can be unloaded by the movable tower alone. The advantage of this would be very apparent in case any of the machinery in the elevator should be disabled. The main tower is 45 by 28 feet. The two towers combined will have capacity for raising 16,000 bushels of grain an hour. Another good feature is the mode of conveying grain. There are two conveyors of four-ply rubber belting forty inches wide. They are nearly flat, being concaved in the center by the weight of the grain. The system of loading cars deserves special mention. Three lines of tracks run through the elevator. The cars run directly into the house by force of gravity over 10,000 feet of track, and can be run out to the main line in the same way. The spouts are so arranged that cars can be loaded without any part of the machinery of the house being operated. There are six track and five hopper scales, and cars can be quickly weighed when they enter the house empty and go out loaded. It is estimated that 500 car loads of grain can be taken out every day. The scales are from the celebrated Fairbank's works. The best facilities are afforded for loading canal boats.

The elevator buckets inside are 18 inches wide, and those outside 16 inches wide. The main driving shaft is 12 inches in diameter, and the main driving wheel weighs three tons. The main driving belt is an enormous affair, being 120 feet long and 38 inches wide. The material is rubber, made by the Goodyear Company.

The engine and boiler rooms are separated from the elevator by a 16-inch brick wall. The engine was made by Mr. H. G. Traut, of the King Iron Works. It is an upright condensing engine of 300 nominal horse-power, having a cylinder 30 inches in diameter with a 36-inch stroke. It is a handsome piece of work, and makes less noise than some clocks. In the engine room is a large Worthington pump having a capacity of 650 gallons per minute. This is to be used in case of fire. It forces water into pipes running all through the elevator. The boiler room, off the engine room, contains three of

Riter's Otis steel boilers, each 12 feet long and six feet shell. The bottom plates are three-eighths of an inch thick, and are the largest ever rolled. Coal can be loaded into the bunkers in this room directly from the cars.

The very large and shapely brick chimney of the elevator attracts much attention. It is 18 feet square at the base, and rests on a solid stone foundation, beneath which are 69 piles. The "smoker" is 188 feet high.

Everything that modern ingenuity could invent to make this elevator perfect has been done, and it is safe to say that no grain house in the world can excel this one, and few, if any, equal it. The designs were prepared by Mr. Robert Dunbar of this city, who stands foremost in the country as a builder of elevators, and R. Dunbar & Son furnished the machinery. The excavating was done by Mr. John Quinn; the pile-driving by Mr. Louis Harbrecht; the stone work by Mr. John Hickler; the steam-pipe covering by Mr. E. G. Marvin. Mr. F. H. Goodyear furnished the hemlock lumber, Henry Bayard & Co. the hemlock timber, and the Union Dry-Dock Company the oak timber. Mr. Charles Berrick built the chimney and engine and boiler rooms, and the Goodyear Rubber Company furnished the belting. The construction of the building was in charge of Mr. Brigham B. Clark, the Connecting Terminal Railroad being represented by Mr. E. H. Rounds, Superintendent. Mr. Charles Sparks is the foreman, Mr. John Killilie engineer, and Mr. James Kennedy the boss-shoveler.

The cost of the property is nearly \$300,000, and the house will have capacity for nearly 950,000 bushels of grain. In its workings so far the utmost satisfaction has been given.

RECEIPTS OF GRAIN AT WESTERN MARKETS.

The *Railroad Gazette* presents a tabulated statement of the receipts of grain, exclusive of flour, at each of the Northwestern markets during nine months ended September 30, of three successive years, and the percentage of the total at each as follows:

	1880.	1881.	1882.
Chicago.....	103,526,904	95,610,152	70,345,238
Milwaukee.....	11,083,391	12,665,745	10,653,458
Toledo.....	29,250,918	18,792,064	15,360,868
Detroit.....	6,580,890	6,037,941	5,232,125
Cleveland.....	4,900,351	5,586,258	3,031,751
St. Louis.....	35,894,832	33,351,308	31,064,049
Peoria.....	18,065,045	20,869,880	15,356,355
Duluth.....	2,611,570	741,991	1,259,682
Total.....	214,912,801	191,655,139	152,303,526
	100.0	100.0	100.0

There is a falling off of the total receipts of 39,452,000 bushels from those of last year, and a decrease everywhere except at Duluth, that at Peoria being the most marked, and due probably to the bad corn crop, which is almost the only grain it receives. There is an increase of the percentage at St. Louis, and a decrease at Chicago, due in the former case to the marketing of the new winter wheat, as the increase occurred during the last three months, there having been a considerable falling off in the receipts of the previous six months as compared with last year. The more Southern markets naturally obtain the earlier advantages from the new harvest. Chicago's deficiency in the last three months as compared with the grain receipts of the same period of the two preceding years was about 5,000,000 bushels, which is due to the decrease in corn and smaller benefit from the new crop. Milwaukee, where but little winter wheat is received, had a very much larger proportionate decrease in her last three months' receipts. Toledo, which, next to St. Louis, shows the benefits of the new crop, up to June had decreased in her receipts as compared with last year nearly 8,000,000 bushels, since June has received some 2,000,000 bushels more than during the same period last year, but about 5,000,000 bushels less than in 1880, which was a remarkably favorable year for winter wheat.

Where there has been time for the new grain crop to reach the markets, the recent receipts have been large; on the other hand, where it is too early for the new crop, and especially where the summer receipts are largely corn, as in Chicago and Peoria, the receipts during the last three months were comparatively light. A large shipment of new spring wheat is to be expected, nearly

all from Chicago, Milwaukee and Duluth. There is a large amount to be shipped, but, with low prices and farmers independent how rapidly it will be marketed is uncertain. There is a general good harvest to supply the foreign demand, and movements here may be slow. The corn crop is not yet ready for market, but even when ready the amount will not equal that of the two previous years.

BROKERAGE ON ELEVATOR BUSINESS.

There are four grain elevators in New York and Jersey City with a capacity of 5,500,000 bushels of grain. Elevators A and B on the east bank of the Hudson River belong to the New York Central railroad, the first being 165 feet in height, 340 by 100 feet in size, with a capacity of 1,500,000 bushels, and the second 160 feet high, 325 by 76 feet and a capacity of 1,000,000 bushels, being only 200 feet distant from the other. Those in Jersey City are known as the Erie and Pennsylvania elevators. The latter is covered with corrugated iron, has a height of 188 feet, 108 by 146 feet in size, and a storage capacity of 1,500,000 bushels. The Erie Elevator is about the same size, being 150 feet high, 360 feet long by 90 feet wide, covered with ribbed sheet iron, and having a capacity for the storage of 1,500,000 bushels. All grain not contained in these elevators must pass into grain stores, where it is held in bulk or bags in the earlier fashion. It can easily be understood that in the busy seasons of the year the capacity of these houses is fully tested, and then the demand for insurance becomes proportionately great. The premium paid is generally for a few days, based at short rates on the annual premium of two and two and a half per cent., but when grain merchants are urgent the rate increases from two to five and six per cent.

In this condition of things, with insurance in great demand and companies being urged to take full lines, it seems astonishing to say the insurance companies are paying regular brokerage commission, which generally means twenty per cent. and sometimes twenty-five or thirty. The rating of these four grain elevators would reduce the commission to brokers to ten per cent., but some of the companies oppose the fixing of a rate, since they could not so readily squeeze their customers at busy times.

The frequent condition of affairs is indicated by the recent notice from the managers of the four elevators to the New York Produce Exchange, that they claim the right to "float" vats and to transfer them to Brooklyn stores, unless ordinary business brings some relief.

If the Tariff Association wishes to move cautiously, and is not ready to proceed to rating, then let it recommend to all the companies a maximum commission of ten per cent. The underwriters claim they are entitled to higher rates when they strain a point and increase their lines; but if they are running a greater hazard, it is needless to deprive themselves of the fund necessary to husband against the time of fire. Elevators every whit as safe as these have burned, and when a fire is well started the building is sure to burn down. Many companies will never receive enough premiums on all elevator business to pay for one fire. Why then needlessly throw away fifteen per cent. of the premium in brokerage?—*Insurance World*.

WHEAT AND CORN STATEMENT FOR NINE YEARS.

S. W. Talmage, of Milwaukee, sends the *United States Miller* the following statement of the wheat and corn production in this country from 1872 to 1881 inclusive, also the average annual production, and the estimated production for 1882:

YEAR.	WHEAT, bu.	CORN, bu.
1872.....	249,997,100	1,092,719,000
1873.....	281,254,700	932,274,000
1874.....	309,102,700	850,158,500
1875.....	292,136,000	1,313,069,900
1876.....	289,356,500	1,283,827,000
1877.....	364,194,100	1,342,558,000
1878.....	420,122,400	1,388,218,700
1879.....	448,755,118	1,547,901,800
1880.....	498,549,723	1,717,434,500
1881.....	383,280,100	1,194,916,000

Average production:

Wheat, bushels.....	352,604,844
Corn, bushels.....	1,267,106,650

Estimated production for 1882:

Wheat, bushels.....	525,000,000
Corn, bushels.....	1,300,000,000

The American Elevator

—AND—

GRAIN TRADE.

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**A. J. MITCHELL, Business Manager,
HARLEY B. MITCHELL, Editor.**

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ADVERTISING.

This paper has a large circulation among the elevator men and grain dealers of the country, and is the best medium in the United States for reaching this trade. Advertising rates made known upon application.

CORRESPONDENCE.

We solicit correspondence upon all topics of interest connected with the handling of grain or cognate subjects.

IS IT A POSSIBLE SCHEME?

For some weeks rumors have been prevalent of a scheme for the manipulation of the wheat market, of gigantic dimensions, involving a combination of the enormous capital held by the great railroad kings and bankers of the country, to be managed by the most successful and experienced grain operators of the various Boards. There are no positive indications and no denials, while its possibility is generally admitted, and some circumstances seem confirmatory. The silence itself in regard to it adds to the suspicion of such an arrangement. The purchases from farmers directly and indirectly, it is said, are being very quietly though extensively made. The wheat so purchased is to be held back until the tightness of the markets induces the "shorts" into buying heavily. Under these influences prices will probably rise to those of May and June. When the purchasers are thoroughly loaded down with contracts, the vast reserves held by the combination will be poured into the markets until the contractors have laid out their last cent, when prices will fall to their normal standard, and the speculators will buy and ship at profitable rates, clearing the markets for new deals, at new centers, with similar repeated results to the benefit of the ring.

Though the scheme is practicable, there are difficulties in the way, among which would be the mistrust which naturally exists among the elements of so huge a combination, and the fear thus engendered of inner rings and cliques which might at any point, by some unsuspected operation, break the spell on which the whole depended. In spite of this, there are some facts in the present slowness of the market movements in grain that lead to a suspicion of some unnatural retarding influences. Prices are such as to be fairly remunerative to farmers, who are generally in great need of money. For a time the flow of currency into the country showed this to be the case, but this flow has almost ceased, as we learn from the monetary centers. What may be the reason for this is a matter of surmise only. The amount of capital available for speculative purposes controlled by one or two of our great railroad magnates combined with several grain and banking firms would be sufficient, it is said, to corner every great grain market in the country. For such a

combination it would be an easy matter to contract for all the products of all the great mills of the country at full capacity for a period of one or two months. Contracts with dealers and with farmers could at the same time be made, and wheat be held back, while every mode of delay in the matter of transportation which this ring would control could be made available to aid the scheme. The terrible effects on all the business of the country which the carrying out of such a possible scheme would produce can readily be imagined. These consequences, so disastrous when thus seen on the large scale, are the same in kind, if not in degree, with the results of the practices common to millers and grain men at our great grain centers, which are based upon the same principles.

THE OUTLET SYSTEM AND THE MISSISSIPPI COMMISSION.

The objections made to the plans adopted by the Mississippi River Improvement Commission resulted in the appointment by the House of a Special Committee of Inspection. After some delay, the Committee, it is stated, were to commence their work at Cairo, on November 9 or 10. Captain Cowdon is a representative advocate of the outlet system as opposed to that of jetties, revetment, etc., which, under the superintendency of Captain Eads, has been adopted by the Commission, and upon which they have already expended over \$4,000,000 appropriated last year, and are asking that a like amount be given them this year. Captain Cowdon and those who agree with him claim that the Commission was made up entirely of members committed to the present plan, representing the special interests of those who have overflowed land to reclaim, or other advantages to gain, while the views of their opponents have failed to obtain a just hearing.

The outlet system advocates claim that the expense of the plan being pursued will be more than \$100,000,000, and a large outlay to maintain, which will be more than wasted, injuring navigation, ending in the inundation of a large territory, making a new channel to the Gulf, and reducing New Orleans to the condition of an inland town. The outlet system would not require one-tenth of that sum, and can be tested as to its results for \$500,000 or less. The present Congressional Committee are said to be composed of men who are willing to give all parties and views a fair hearing, while some of its members are seriously in doubt as to the merits of the jetty and levee system. The whole country is deeply interested in the careful examination and correct decision of these momentous questions.

THE TRANSPORTATION QUESTION.

The conflict of interests, between producers and shippers on the one hand, and the railroads on the other, as to the transportation rates is constantly reappearing, and a remedy for the so considered extortionate charges, or a mode of fair adjustment of the differences is, in constant request. The value of railroads, with the expense and difficulties met with in their early construction, and in regions where freights were small, gave them the privilege of charges which present changed circumstances may not justify. The vast capital concentrated in a few hands which these roads control give them also an excess of power which selfish interests may abuse. A resort to coercive legislation is a remedy always in the hands of the people, but to what extent it is wise to resort to it is an open question. Shippers cannot expect that transportation companies will carry their goods at a loss, while far-seeing railroad corporations must also know that their interests must, in the end, be promoted by the prosperity of the

producer and the increase of production. The *Minneapolis Tribune*, in reply to numerous communications on this subject makes some very sensible suggestions. As producers and shippers are largely scattered, organization is the first step to attaining cooperation. Boards of Trade already exist at commercial centers, and similar bodies of business men could be organized where they do not exist, to represent agricultural interests as well as those of grain dealers. Through these bodies delegates could be sent to conventions gathered to represent a convenient territory, wherein these matters could be calmly discussed, and all the conditions and elements of the question fully understood. A Central Committee, could be appointed, representing these various organizations, empowered to investigate the matters connected with transportation, and in a business like way confer with the managers of the railway corporations against whom complaints are made. Carried on in a proper spirit, amicable adjustment of differences would be likely to occur, with a clearer knowledge of the facts as seen by the different parties, and with the result of mutual respect and esteem which appeals to Legislature and courts are far more likely to destroy.

THE ROUTE OF THE HENNEPIN CANAL.

The survey of the route of the Hennepin canal, by the Engineer-in-Chief, Mr. Herr, is said to have been completed, there remaining only the labor of preparing the estimates and a report to Congress. The route, understood to have been adopted, commences a mile or more above Hennepin, to the great disgust of its citizens, but thereby saving two miles in the distance to Chicago. A saving of over thirty miles has been effected at the western end by not going via Rock Island, the Act simply requiring that the canal be built at or near Hennepin, and at or above Rock Island. The latter place can ship by the Mississippi to the canal, while the larger interests of the Northwest are subserved by the route.

There is a saving of three locks by this plan, each costing \$50,000, and the route is more level, while its principally clayey strata will furnish a better channel, the other route being through miles of sand, requiring the use largely of stone and cement, and the whole way to be coffer-dammed. Besides there are no rock excavations required in the route adopted, while at Rock Island it is all rock, and the Mississippi is then reached through the rapids, which have less than four feet of water often at the busiest season, while the canal requires a draft of seven feet. The chosen route at or above New Albany, near the Meredosia Slough gives seven feet at all seasons.

Other advantages in this plan are the avoiding the Rock Island Railroad, and having but one crossing as against four by the other route, and the avoidance also of valuable farming lands, over which the right of way would be costly, while the route selected is through a comparatively poor country. Davenport, Rock Island and Moline will doubtless feel aggrieved and strongly protest, but the matter should be considered from the standpoint of the interests of the whole Northwest, with its large and growing cities, and its immense and rapidly increasing grain production seeking cheaper roads of transportation to the world's markets.

CAPT. HAWKINS, a veteran elevator man now with the Columbian Iron Works (Chas. W. Parker, proprietor) of Chicago, has been on an extended business trip to various parts of the West, and reports business splendid. A vast number of elevators have been put up all through Missouri, Kansas and Iowa the past year.

SUITS ON PATENT DUMPS SETTLED.

We understand that the suits brought on the Swickard Grain Dump Patent in the United States Courts in the Northern and Southern Districts of Illinois against J. M. Murray, of Eureka, Ill.; Simpson & Kidder, George Warren and John Warren, of Minonk, Ill.; Wm. Rickey, of Roanoke, Ill.; Cox & Aldrich, of Hudson, Ill., and others, have been settled by the defendants acknowledging infringement of the Swickard patent, paying costs of suit and paying for a license under the infringed patent. The Illinois Central Railroad Co. have settled with Mr. Harper and taken license under all his patents on dumps. We are informed that the above settlements were made by the advice of the defendants' counsel, who gave it as their opinion that the Swickard patent was the foundation patent.

MILWAUKEE'S GRAIN TRADE.

A correspondent of the Chicago *Times* at Milwaukee reports some of the press gossip there in reference to the wheat trade of that city, and his own views based on interviews with railway and lake transportation officials. Mr. Langson, Secretary of the Chamber of Commerce, was reported by the *Sentinel* to have said, in effect, that the grain trade of Milwaukee was dead, and that Chicago was taking all its business. Mr. Langson took occasion to see the editor and deny the statement, averring that what he had said referred to grain speculation, in which there had been a decrease in Milwaukee, and that Chicago now takes the lead in grain gambling. The editor claims that the promise of legitimate trade in grain in that city is more favorable than for several seasons. Milwaukee is a spring wheat market, and the crop, which is an exceptionally good one, is only just beginning to move.

To this view the correspondent takes exception, and asserts that "Milwaukee has lost her wheat trade, never to regain it." The Pacific connection of the Chicago, Milwaukee & St. Paul road naturally diverts the wheat which formerly came there from the Southwest, which is a large and increasing source of supply. Duluth also captures a vast amount of the wheat for shipment East which formerly came there or further South. The erection of flouring mills at all important points in Iowa and Minnesota cut off the remaining source of supply by grinding the wheat and shipping it East as flour.

A railway official of the Chicago, Milwaukee & St. Paul Railroad says there are mills enough in Minnesota to absorb the entire wheat crop of the State for the present year. These mills are mostly fully equipped with all the modern improved machinery and systems. These mills are the robbers of the Milwaukee grain trade. This official also said that the Milwaukee Chamber of Commerce had committed a fatal mistake when it lowered the long existing standard of grade—"the grade which had made the wheat shipped from her elevators popular even in the United Kingdom."

Interviews with the agents of lake transportation lines confirmed the statement that shipments of flour had largely taken the place of wheat. The package freight of propellers this season had doubled that of the same period of 1881. Mr. Brigham, of the Anchor Line, states that their propellers alone during the second week of October had carried out a package freight of 4,000 tons, equal to 40,000 barrels of flour, and that offerings were on the increase. Other lines are also doing a heavy business, increasing as winter approaches; all of which, in the writer's opinion, goes to show that flour is almost entirely supplanting the grain trade of Milwaukee.

Editorial Mention.

SEND us news from your neighborhood.

A LONDON paper says that Europe will have to buy nearly 350,000,000 bushels of grain this year.

MR. C. W. JOHNSON, of Kankakee, Ill., Secretary of the Illinois Grain Dealers' Protective Association, called upon us this month.

MESSRS. LEWIS & WAYLAND, of Glasgow, Mo., subscribe for THE AMERICAN ELEVATOR AND GRAIN TRADE, and write: "Every grain dealer should have it."

It is a fact that scarcely a tenth part of our grain-producing area is yet utilized. The possibilities of American agriculture have not begun to be realized.

JOHN H. ROHELDAFFER, superintendent of Elevator "B," St. Paul, Minn., writes in subscribing to our paper: "I have seen a sample copy and it is what I want."

SHIPPERS of wheat at New York are said to be dissatisfied with the grade of No. 2 wheat. They want a higher grade, and want to have the practice of mixing stopped.

THE improvements to E. P. Allis & Co.'s foundry and machine shops, in Milwaukee, are progressing nicely, and will prove a much needed addition to their greatly increasing business.

THE total yield of the corn crop this year is now placed by reliable parties at 1,750,000,000 bushels—much the largest crop ever raised in this country. It has been a very agreeable disappointment.

WE wish to thank our friends who have taken, many of them, great pains to bring this journal to the notice of their friends. Scarcely a day passes but that we receive very substantial proof of this disinterested kindness.

A CHEAP, durable and fire-proof Rubber Roofing is advertised in this issue by the Indiana Paint and Roofing Co., of Indianapolis, Ind. Any of our readers who need such an article should read their card and write them for particulars.

THE insurance men are again having their usual spasm over the extra-hazardous nature of elevator risks. These spasms have occurred at such regular intervals for so long a time that the disease may be considered chronic, but not dangerous.

THEY are again agitating the adoption of the cental in England as the standard of weight, instead of the bushel. The bushel ought to become a thing of the past. A standard of a hundred pounds' weight would be both sensible and convenient.

OUR journal finds favor both with the big and the small elevators. Mr. Chas. E. Davis, superintendent of the Girard Point Elevator, Philadelphia, writes us: "I have had the pleasure to peruse two of this year's numbers of your paper, and find in them some very valuable information. You may send me the back numbers of the publication and date the subscription from the first number. I think every person in charge of elevators should subscribe, as the information obtained is worth more than the price of subscription."

MR. F. H. WARREN, agent of the Northern Pacific Elevator Co., at Tower City, Dakota, writes that he is much pleased with the AMERICAN ELEVATOR AND GRAIN TRADE, and is sure we will receive many subscribers from his locality. Sure enough; his prophecy is already verified.

READ the advertisements in this issue. You will find almost everything advertised that you need; and no journal published can boast of a better list of advertisers than this paper possesses. The list is not large, but many of the best firms of the country have their names in it.

AMONG our new advertisements this month is that of the Williams & Orton Manufacturing Co., of Sterling, Ill., extensive manufacturers of pulleys, shafting, wire-rope and sheaves for the transmission of power, and general machinery. One of their well-known specialties is the "Sterling" Portable Mill, which has met with great favor.

THE *United States Miller* of Milwaukee says: "THE AMERICAN ELEVATOR AND GRAIN TRADE is the name of a new journal, published by Mitchell Bros.' Co., Chicago, Ill., in the interest of elevator owners and grain dealers generally. It is a handsome and ably conducted paper, and should be subscribed for by every grain man in the country. The subscription price is \$1.00 per year."

WE receive many flattering letters from our subscribers. Mr. N. E. Phillips, of North Henderson, Ill., writes us: "I have just received a copy of the last issue of your very instructive and valuable paper, THE AMERICAN ELEVATOR AND GRAIN TRADE, and wish to lose no time in subscribing for it, as I consider it the best and most important paper to the trade published in this country."

"DON'T HOLD THE CORN," is the advice which a correspondent of the *Country Gentleman* gives his farmer readers. In studying the matter the farmer (and other holders of corn) must calculate the cost involved in storing the grain for six or eight months. He must also allow for the shrinkage of the grain, cost of insurance, and interest on the money which the corn would bring if sold at once.

CUTLER & Co., of North Wilbraham and South Framingham, Mass., advertise in this issue their dryer, which has been tested by over ten years successful use in their own extensive business of grain handling and milling. It is adapted to a wide range of work, and the claims made for it should entitle it to investigation by all grain men and others who need drying apparatus. Read their advertisement.

FRANKLIN EDSON, the newly elected Mayor of New York, has been for many years a prominent member of the Produce Exchange of that city, having been elected to the Board of Managers and subsequently to the Presidency for a number of years. He is the originator of the system of grain inspection existing in New York, and is known generally as an honorable and highly successful business man.

THE people of New York state voted for free canals by 200,000 majority. Although both political parties endorsed the free canal amendment, it was feared at one time that railroad influence and the prejudice of farmers remote from the canal would defeat the measure. It is carried, however, and the people of the Northwest can congratulate the people of New York. Both have an equal interest in the matter.

THE REVIVAL OF CANALS.

It is not long since the general belief in regard to canals was, that they had seen their day of usefulness, and were, wherever practicable, to be superseded by the railroad. The great international enterprise, the Suez canal, a part of the great interoceanic route of commerce to the East, and the projects of like importance to the world, as to crossing the Isthmus of Panama, still moved on, while the improvement of the St. Lawrence system to a permanent value for ocean carriage was recognized as a settled fact as a national work. But the general feeling is rapidly changing and canals are again being looked upon as an increasingly important element in the transportation of the world's products, and especially as a competitor to the railway and a leveler of freights.

The commercial and financial success of the Suez Canal has been so marked that already there is not only a demand for its enlargement, but also a clearly developed project of another canal, which, by the way of Alexandria and Cairo, shall cross the African Isthmus. The London *Times* has espoused the cause and shown that aside from its direct value to commerce, it would benefit a vast region of country now beyond the reach of irrigation. Estimates of its cost have been put at \$50,000,000, an expense less than that of De Lesseps. The present tolls on the latter, which are claimed to be excessive, are an additional stimulant to the enterprise. The grander scheme of a canal to unite the Atlantic and Pacific, through the Panama Isthmus, while meeting with abundant antagonism as utterly impracticable, or at least involving an expenditure for which its use will not compensate, is being pushed by vigorous hands accustomed to success, with whom go overwhelmingly the sympathies of the world, except such as may have conflicting interests at some other competing points.

Germany is investigating the question of a scheme, also of international importance, for connecting by canal the North Sea and the Baltic. The Government engineer, in 1865, drew a plan for a canal to run from St. Margarethen from the Elbe, to Eckenforde on the Baltic, at an estimated cost of about \$20,000,000. It was afterwards, for war purposes, decided to make a debouch in the Bay of Kier, at an increased expense of some \$7,500,000. The state of the finances in that country has so far prevented the execution of their plans, while others have been made by private capitalists, and its future construction at some point can hardly be doubted.

The railway facilities of France are said to be excellent, and she has also a fair amount of canals, but she has determined to largely increase the latter until her internal transportation shall be carried on through a network of these artificial waterways. There is also a project for uniting by a ship canal the Mediterranean with the Bay of Biscay, saving a long distance over the route by Gibraltar, and adding largely to the vineyard interests of that region.

The most recent and among the most important of these projects is to construct in Lancashire, England, a ship canal which shall connect Manchester, and its vast manufacturing suburbs, with the Channel, either by way of the Mersey and Liverpool, or the Dee and the estuary at Chester. The railroad has long had the monopoly of transportation here, and as evidence of this abuse of its power it is said that the freight from Manchester to Liverpool, a distance of fifty miles, is two-thirds of the ocean freight to New Orleans. A canal of this length to Liverpool would have the first portion from the latter place, tidal, the second semi-tidal, and the third stillwater. The estimated cost is \$23,000,000, which Manchester alone, if required, could readily raise. Various condi-

tions, connected with engineering, water levels, and the bar at Liverpool, enter into the question of choice between this route and the one by Northwich, the Dee and Chester. Ultimate advantages may make subsidiary present expense, but there can be no reasonable doubt of the eventual execution of the plan at no distant period.

We have already, in different issues, spoken of the deep general interest now taken in the projected Hennepin canal, the Illinois and Michigan, of our own State, and the Erie canal of New York, which, it is hoped, will yet together form a grand waterway from the Mississippi to the Atlantic. There can be no reasonable doubt, considering the great and widely extended value of this route for transportation, that the ownership of these canals will yet fall into the hands of the general government, and that their capacity will be enlarged so as to permit the passage of vessels of the largest tonnage the Mississippi can float. The canal connection between Lake Superior and the Red River system of the North is as yet only a plan, with much to learn as to its course and expense. But the history of our past rapid development is a guarantee it will be an accomplished fact. Speaking recently upon this proposed canal, the *Detroit Marine News* says: "It cannot be said that great waterways are to become obsolete. Canals have been, and still are, essential to commerce. Rome built them two thousand years ago. France, Prussia and Holland are still at work building new and larger waterways. There are more similar projects on foot now, on this continent, than ever before. De Witt Clinton developed, the Empire State and created the commerce of New York city by the Erie canal. Our Canadian neighbors are even now, at immense expense, pursuing the development of their grand system of canals leading to the ocean."

CANADIAN VIEWS OF THE NEW YORK CANAL AMENDMENT.

The constitutional amendment enabling the Legislature to make the Erie a free canal has been adopted by the people of New York State by an overwhelming majority. The Canadian view as already expressed by its press is that this is wholly in the interests of the great cities at the termini of the canal, while the abolition of tolls, reducing freight rates, will only increase the prices received by the Western farmer whose products go by water to the Eastern market. The farmers of New York state, who will have to maintain the canal, will not only receive no benefit, but be injured by the great increase, thus produced, of competition in the sale of grain. The abolition of tolls will also effect a reduction in through railway freights on western grain and as this business is already transacted by the roads at an actual loss during the summer, the local rates will be increased to compensate these losses. Not one per cent. of the farmers of the state live within hauling distance of the canal; and those that do are the only ones that will be benefitted by the change. So, in the opinion of our astute neighbor, the free canal means to the New York farmer decrease of profits, increase of competition and taxation, and no compensating advantages.

It costs more to carry a bushel of wheat from Budapest, in Austro-Hungary, to Hamburg, Germany, than it does from Chicago to Hamburg.

The firm of Lovett, Gittings & Co., engaged in the grain and agricultural implement trade at Disco, Carman, Lomax and another Illinois town, made an assignment on Oct. 31. Their liabilities are about \$30,000.

Special Notices.

Buckwheat Grain Wanted.—The flour supplied at market price. H. H. Emminga, "Prairie Mills," Golden, Ill.

Elevator Men—Howes, Babcock & Ewell, of Silver Creek, N. Y., make a full line of wheat cleaning machinery. Read their advertisement on first cover page.

The American Miller—published by Mitchell Bros.' Co., 184 and 186 Dearborn St., Chicago, Ill., is the largest, best and cheapest milling journal published. Subscription price only \$1.00 per year.

For Sale Cheap—Trimmer Scourer, Hominy Mill, Novelty Separator and Oat Separator. Address A. M., care AMERICAN ELEVATOR AND GRAIN TRADE, 184 and 186 Dearborn St., Chicago, Ill.

Revolution in Prices.—The Chicago Scale Company have reduced their prices on scales from 33½ to 65 per cent. below their former prices and below other manufacturers. They make more than three hundred different kinds of scales, and now claim to make the *cheapest and best* scales in the world. They send their reduced price list free to any one. Address CHICAGO SCALE CO., 147, 149 and 151 S. Jefferson street, Chicago, Ill.

For Sale—At Genoa, Ill., situated on C., M. & St. Paul Railway, about sixty miles from Chicago, a Grain Elevator, Feed and Flax Mill, Hay Press, etc., all in good working order; has switch track. Main building 48x60; store room, 30x30; engine and grain room 42x60. Owner sells on account of ill health. Good business all the year round. For full particulars, number of machines, capacity, etc., address BAIRD & BRADLEY, 90 La Salle-st., Chicago.

For Sale—One piece 11-inch 3-ply rubber belting 137 feet long, nearly new, with iron elevator buckets 10x7 every 15 inches the entire length. 50 cents per foot. One piece 10-inch 3-ply rubber belting 137 feet long, nearly new, with iron elevator buckets 9x6 every 15 inches the entire length. 45 cents per foot. A lot of 12-inch iron conveyors, nearly new, at \$1.00 per foot. Send for catalogue of new and second-hand engines, boilers and machinery. M. F. PERRY, 43 S. Canal St., Chicago.

The Webster & Comstock Mfg. Co. of Chicago, have put into elevators in different parts of the country this season forty sets of their "Coker" Power Grain Shovel for unloading cars. With a set of these shovels two men can unload a car of five hundred bushels in five minutes.

The *Waco Examiner* of Waco, Texas, has the following in regard to the City Elevator at that place: "We hope that every business man in adjacent towns and every farmer who visits Waco this season will take time to go and inspect the elevator enterprise on Second, between Jackson and Mary streets. Not until this year has Waco been able to boast of such an institution, greatly as it was needed for the proper handling of grain brought here for sale or shipment. The need is now supplied by an elevator as fine as can be found in any Texas city. The buildings and machinery are all first-class, and grain can be stored or handled to the very best advantage. Farmers as well as buyers of grain will soon learn what a benefit this institution is destined to prove to this city and section. The buildings are so arranged that railroad cars or wagons may be loaded or unloaded with equal facility. In addition to the elevator department there is an extensive cotton department, for the storing and weighing of cotton. The sheds for storage are perhaps the largest in any interior town in the state, and parties who store can rest assured their cotton will be kept safe and in good condition. In the cotton, as in the grain department, every facility is afforded for loading or unloading from country wagons. The scales used are of the largest and most reliable make and every appointment is first-class. Messrs. Seley & Patterson are the proprietors of this great enterprise, Mr. Seley being well known as the cashier of the Waco State Bank, while Mr. Patterson has been for years a leading cotton and grain dealer in this city. Both are practical men and will give general supervision to the entire establishment. The cotton department is in charge of Mr. Meredith A. Sullivan, one of the most reliable and competent cotton men in the south—a man who has had long experience and can be depended on in every way. He will be found there during the entire season. The establishment proposes to handle grain of all kinds and cotton either for storage, shipment or purchase. It is what has been wanted here for years, and merits the confidence and patronage of the public. We repeat that it is well worth a visit, for it is a valuable institution."

Communicated.

The Dump Question.

Editor American Elevator and Grain Trade:—The Illinois Grain Dealers' Association, of which Mr. C. W. Johnson, of Kankakee, is the secretary, recently organized for mutual co-operation and benefit, and almost immediately came to an issue with the owners of the patents for tilting platform grain dumps, who are seeking to collect large sums of money from the various grain elevator men for alleged infringement of their patents.

Suits are brought or threatened against some of the members of the association in order to compel a settlement of these claims, and a compromise effected with the railroads by the owners of the patents is being used to frighten the timid into a speedy compliance with the demands of the representatives of the patents.

There is reason to believe that the compromise with the railroads was made for a merely nominal sum, the owners not choosing to risk a judicial inquiry into the validity of their patents, but sacrificing their claims for substantial damages against the roads, so as to secure in return the means, under the name of a settlement, for influencing less powerful parties to a quiet submission to their exactions.

How far this plan may succeed remains to be seen. It is certain that the members of the association have taken competent legal advice, and intend to resist the attempted collection because of the worthless character of the patents and the non-infringement of their claims.

JUSTICE.

CHICAGO, Nov. 14, 1882.

GRAIN.

Contrary to general expectations, the grain trade of the country during the last few months has been devoid of much animation. The movement from the interior to the seaboard and thence to Europe has been much less than was anticipated early in the season, the farmers in this country holding back, hoping to obtain higher prices, while the European demand has been light on account of the general good yield as compared with late years. Taking the sum of the world's wheat crop, the surplus in exporting countries against the deficiencies in those that import, there is a very large net surplus, amounting to probably not less than 80,000,000 bushels; even basing calculations upon an average yield in the United States of but little over 500,000,000 bushels, although, as we have heretofore said, we think that the crop of wheat of the United States this year was considerably above 500,000,000 bushels, despite the assertions of the United States Agricultural Department to the contrary.

As to the corn yield nothing definite can yet be said, but we think that there is good ground for believing that it will be fully 1,800,000,000 bushels, though the Agricultural Department claims that it will be fully 100,000,000 bushels less than that. For some unknown reason, the Agricultural Department has lately taken occasion several times to publish assertions about the crop reports and statistics of the newspapers of the country, that, while doing these no harm, reflect very seriously upon the wisdom of the department in this particular. As the department has for some years been peculiarly unfortunate in its estimates as to crops, it would be much wiser for it to refrain from commenting upon the estimates made by others.—*Baltimore Journal of Commerce.*

This is what Fink says:—"That whenever a reduction is made in the rail rate from Chicago to New York, occasioned by lake and canal competition, that reduction extends to Louisville, Nashville, and Savannah. It extends to every point of the country. I might say, to-day, when they charge ten cents or twelve cents a hundred from Chicago to New York, the steamship lines from here (New York), to Savannah take up that freight and carry it from here to Savannah for fifteen cents a hundred, making a rate from Chicago to Savannah of twenty five cents. The regular rate from Chicago to Savannah may be at the time fifty, sixty, seventy, or eighty cents, they (the railroads) have to come down and conform to the water rate. * * * Thus the lake navigation and canal navigation regulates the rates of the whole country, you may say, from Canada down to the Gulf."

Late Patents.

Issued on October 10th, 1882.

GRAIN CAR DOOR.—Lenard Mancy, Sedalie, Mo. (No Model.) No. 265,838. Filed October 10, 1881. Renewed September 5, 1882.

ELEVATOR FOR LOADING AND UNLOADING VESSELS, ETC.—Alfred D. Fox, New York, N. Y. (No Model.) No. 265,592. Filed February 16, 1882.

GRAIN DRYER AND COOLER.—Edson A. Abbott, Marshtown, Iowa. (No model.) No. 265,552. Filed July 29, 1881.

GRAIN SEPARATOR.—George A. Roberts and Christian Schafer, Three Rivers, Mich. (No model.) No. 265,637. Filed March 23, 1882.

FEEDING APPARATUS FOR GRAIN SEPARATOR, ETC.—Paul P. Herberg and Peter H. Clausen, Gale, Trempealeau County, Mo. (No model.) No. 265,804. Filed May 9, 1882.

Issued on October 17, 1882.

CORN SHELLER.—Elijah E. Towns, Towns, Ga. (No model.) No. 265,995. Filed August 16, 1882.

GRAIN SEPARATOR.—Fredrick H. Howell, Buffalo, N. Y. (No model.) No. 266,258. Filed February 2, 1882.

ENTRANCE TUBE FOR GRAIN ELEVATORS.—Lafayette, T. Bow, Burksville, Ky. (No Model.) No. 266,083. Filed August 18, 1882.

Issued on October 24, 1882.

TOWING CANAL BOATS. Oliver Greene, Buffalo, N. Y. (No model.) No. 266,360. Filed February 14, 1882.

GRAIN METER.—George W. Sharp, Crawfordville, Ind. (No Model.) No. 266,395. Filed May 15, 1882.

Issued on October 31, 1882.

GRAIN SEPARATOR.—Almerim H. Lighthall, San Francisco, Cal., assignor to William B. Carr, same place. (No model.) No. 266,702. Filed March 13, 1882.

AUTOMATIC WEIGHER FOR GRAIN, ETC.—Ashley R. Cooper, Mooresville, Ind. (Model.) No. 266,608. Filed December 27, 1881.

The crop reports of the world are not sufficiently advanced to form a fairly accurate basis for calculating on the events of the next six months. In quantity, and generally, also, in quality, the harvests of 1882 have been exceedingly rich as to promise a very handsome surplus for future consumption, while the supplies within reach for six months to come are probably the largest the world has ever had. Very heavy crops have been harvested in this country, Hungary, Denmark, Sweden and Norway, Italy, Servia, and Roumania. From these countries relatively large exports could be ordered at any time, except from Italy, which, however, is self-supporting. The Russian crops appear to be below the average, but will leave a very important surplus for export. The crops of the United Kingdom are comparatively good, and call for outside help to the extent of, perhaps, 100 to 125 million bushels of wheat. The French crops are also good, the deficit being slight. Germany has not been very fortunate, and will have to supply an unexpectedly high deficit. Holland and Belgium had a moderately fair harvest, and will need the usual supplies from abroad. Accurate reports from Spain and Portugal are wanting, but it is known that the Peninsula has had a rather poor crop, and will need foreign grain to a larger extent than formerly.

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National Bank of Illinois, Chicago.

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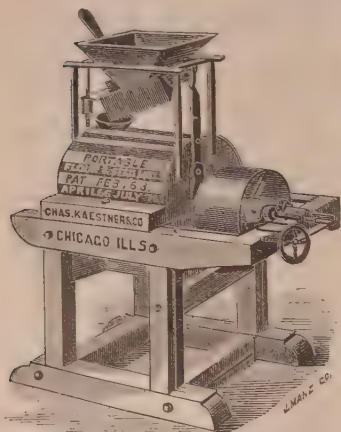
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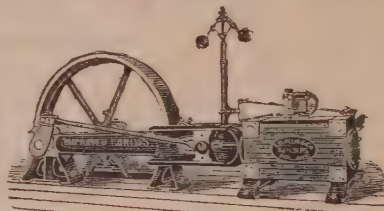
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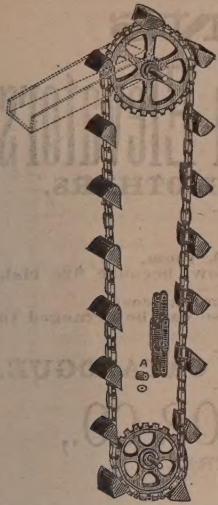
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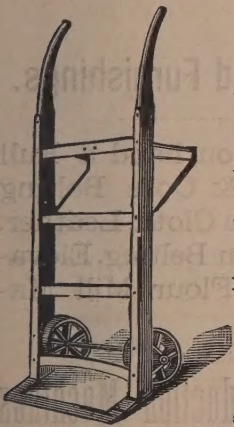
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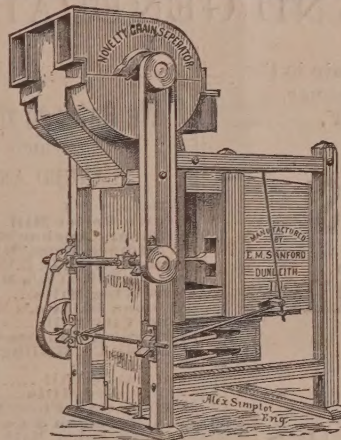
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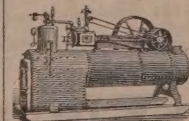
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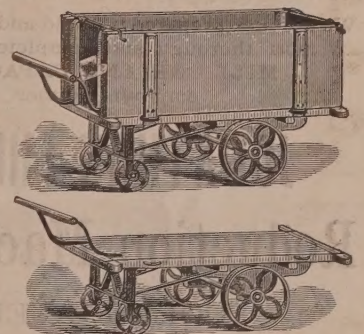
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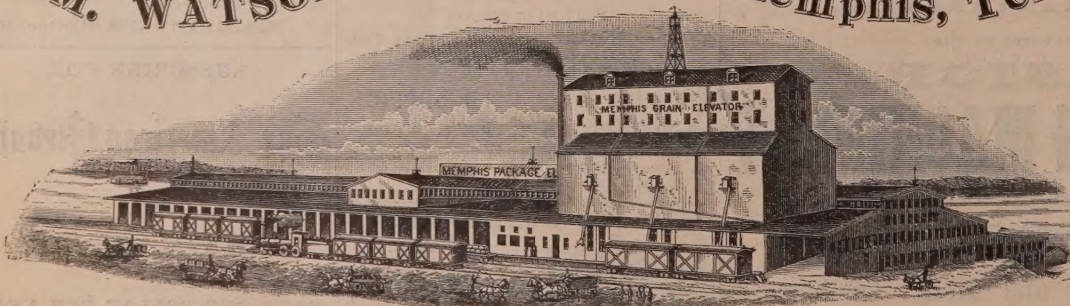
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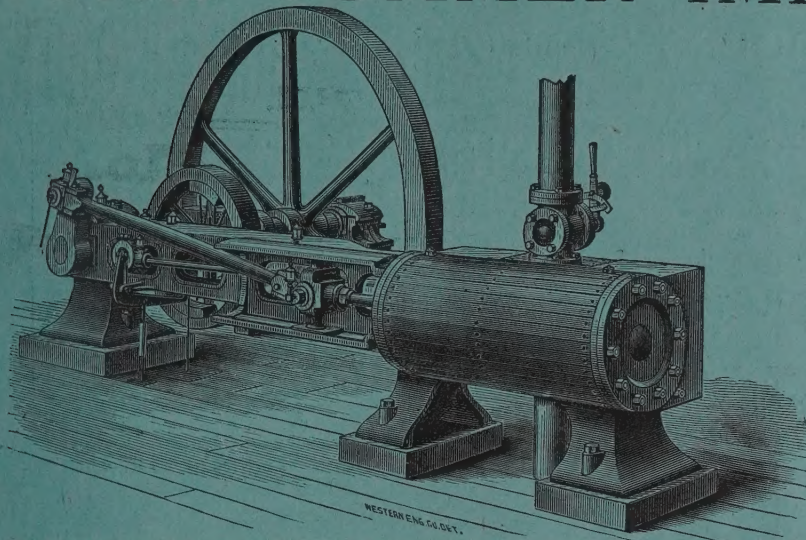
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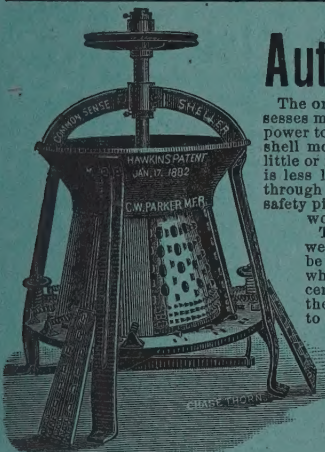
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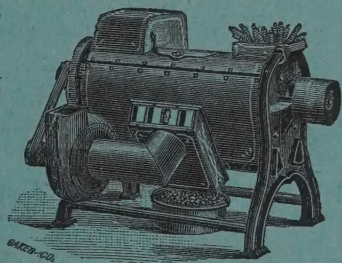
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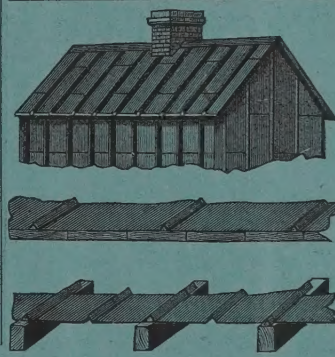
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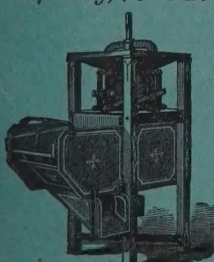
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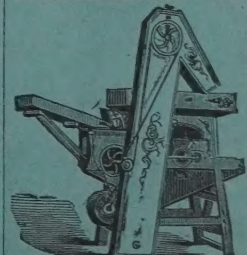
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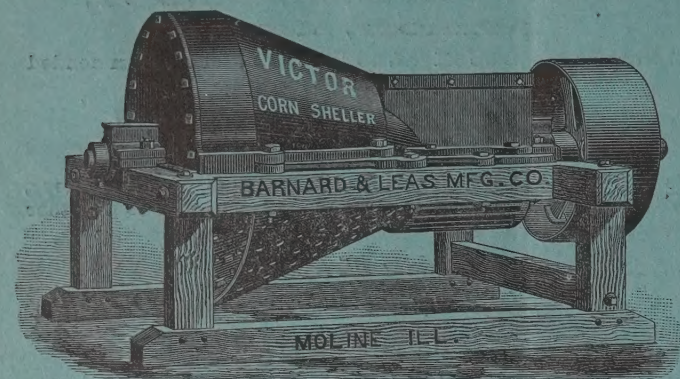


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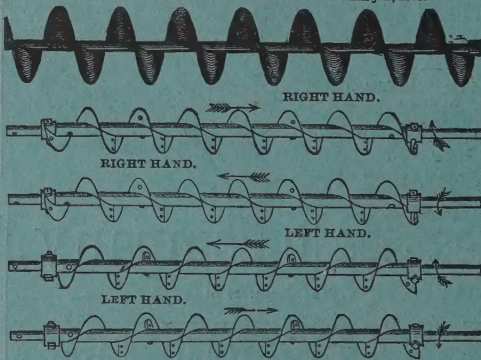
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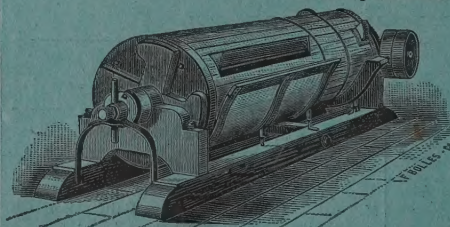
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